# THE MODEL CRAFTSMAN

OCTOBER 1948
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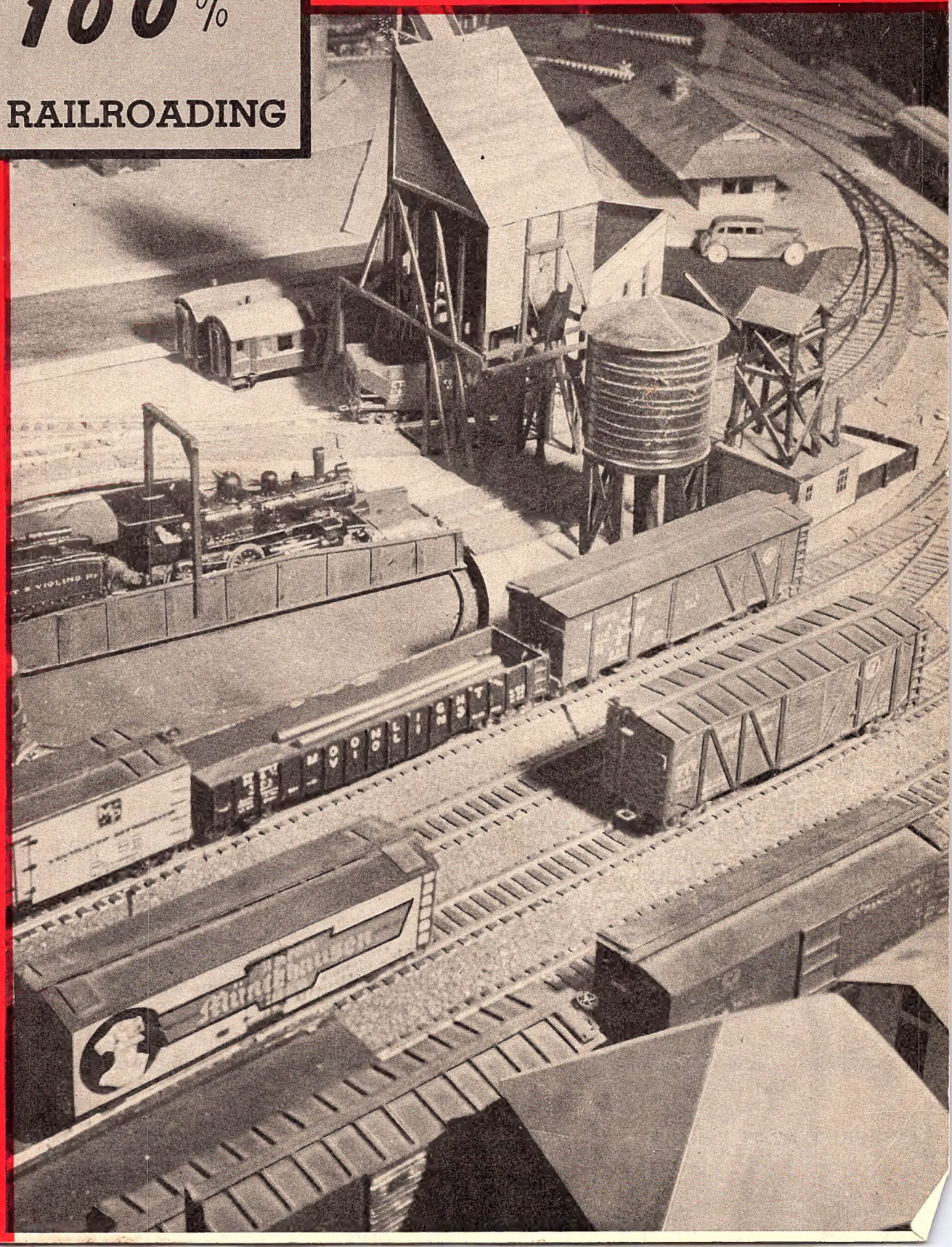
MODEL RAILROADING



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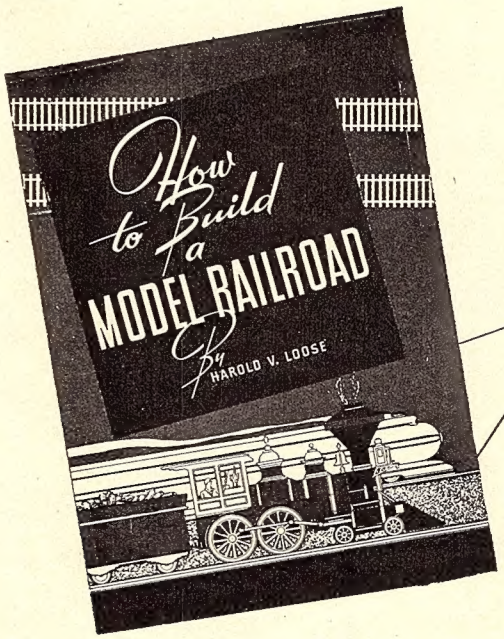


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# THE MODEL CRAFTSMAN

Vol. 17, No. 5 October, 1948


## CONTENTS FOR OCTOBER 1948


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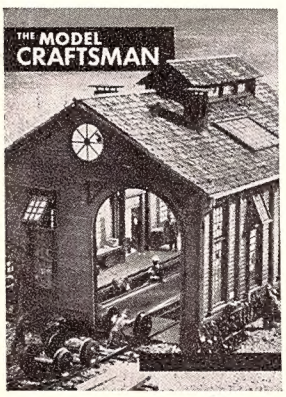


### FRONT COVER

This scene is taken from the old Moonlight and Violins Railroad an HO gauge outfit built by Bill Schopp. Notice that turntable, it will be described in detail in the November issue.


HOT UNDER THE COLLAR—By C. A. Penn ..... 6

THE LAYOUT DOCTOR ..... 7
Layout sketches sent in by the readers and redesigned to best advantage.

BELLOWS FALLS, VERMONT—By Hal Carstens ..... 10
The prototype arrangement of the busiest corner of Vermont.

SOUTHERN PACIFIC 0-6-0 SWITCHER—By Lewis Austin 12
Completion of the Switcher is described this month. Construction of the tender will appear in November.

TRAIN OF TOMORROW—By Walter Musciano ..... 15
Prototype plans in HO gauge of the Chair and Dining Cars.

YOUR NABOR'S PIKE ..... 18
Let your Nabor see your work—send in photos of model equipment to appear on these pages.

EXPRESS CARS—By Warren B. Crater ..... 20
Construction methods and plans.

ENCLOSED MOTOR DRIVE—
By The Long Valley Electric Railway ..... 22
Construction of an enclosed motor truck is described in detail.

OLD TIME ENGINE HOUSE—By John Allen ..... 25
A two-stall engine house is described in detail.

DEALER'S DIARY—By E. A. Kiick ..... 30
A typical dealer relates his everyday problems and how they are overcome.

MODEL RAILROADING MADE EASY—By Jimmy Lang ... 32
How to get off to a good start.

FREELANCING—By Bill Hoffman, Jr. ..... 33
Design your own rolling stock the correct way.

RAILROAD CLUB NEWS ..... 38



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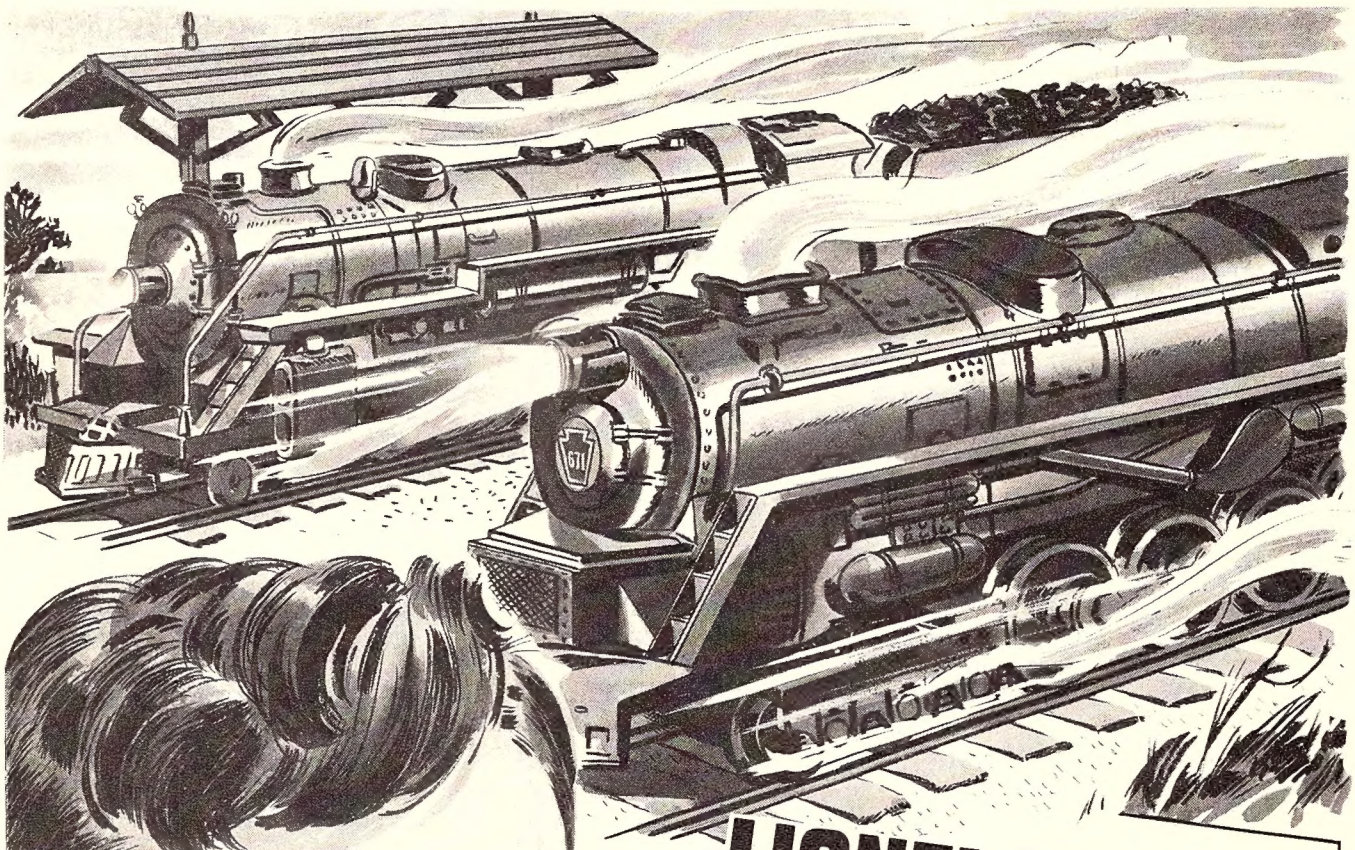

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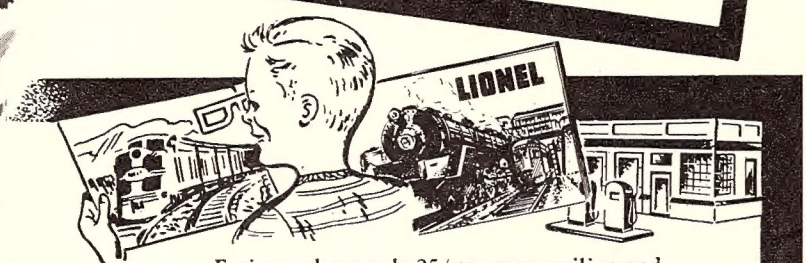


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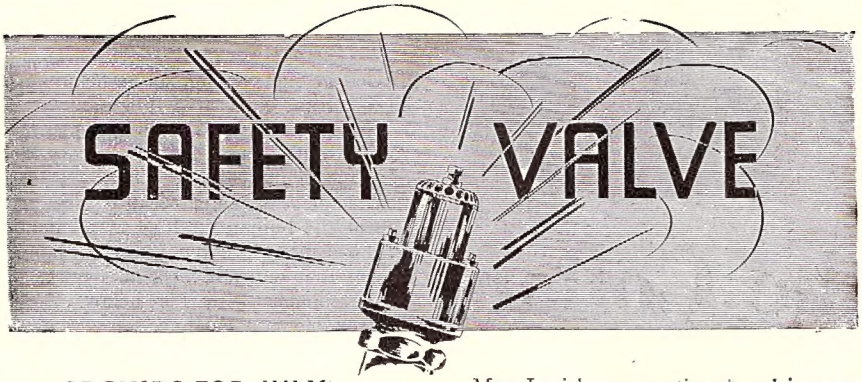


## ORCHIDS FOR JULY

My infrequent criticisms of your magazine have been pretty strong and for them I make no apology. However, I do feel that when a good issue comes on the scene you should be told about and complimented just as you would be told about a shoddy issue.

My reference is to the current MODEL CRAFTSMAN for July. I've been reading your magazine off and on for about eight years I guess, I used to subscribe to it and then my interest waned due to the bad line drawings and the many other features that I didn't like. I know you can't please everyone, but I wasn't the only guy doing all the griping.

The July issue is the best one you've ever put out since you've been publishing the MODEL CRAFTSMAN and that covers a lot of territory! It's interesting and had plenty of good, clear pictures. I debated whether I should buy it in the station newsstand or pass it by as I've been doing for quite some time. Perhaps the HO switcher struck my eye or maybe I played hunch. Who knows, I might subscribe again—that is—IF the following issues are as good as the current one. . . . Barton E. Crosby, New Castle, Del.

## S GAUGER SPEAKS UP

I am a newsstand buyer of MODEL CRAFTSMAN for quite some years. Glad to see the change-over to a complete railroad magazine, which informs you I am a model rail. I have an operating layout in S gauge measuring 15 x 29 feet in the cellar of my home. Yards and some main line are Gilbert two rail trackage, the rest, which comprises most of the running rail, or about three scale miles, is O gauge steel rail on regular ties and spiked. All engines are Gilbert, re-vamped to scale except wheels and couplers. All couplers are Gilbert, trucks —ditto. Cars are repainted and relettered, with some Midgage cars from kits, equipped with Gilbert couplers and trucks. Regular Gilbert uncoupling ramps are used and wired to the control board. Road consists of three blocks or sections, to operate three trains under separate control on the same main line. The road name is "Midgauge R. R."

I have been a model rail for almost twenty years and this is my fourth layout, the first in S gauge. A stud of five engines, eighteen freights and three passenger cars make up the rolling stock. Scenery and towns is the next project, with the superintendent, the Mrs., doing a yeoman job all the way. My five year old son does all the brakeman jobs with professional skill.

May I wish you continued and increasing success—this for your welcome efforts for all model railroaders, new and old alike. . . . J. W. Lang, Elmhurst, L. I.

## L & HR RAILWAY MOVES

Having read the MODEL CRAFTSMAN you might say ever since the first copies were put on the newsstands, I find that you people rarely ever make a mistake in your printed and illustrated items. In the present copy (July) I find that you did make a slight mistake. On page 14 you illustrated a photo of the New York Ontario & Western Railroad at Campbell Hall, N. Y.

You quote that the Lehigh & Hudson River Railway crosses the N. Y. O. & W. where as the Lehigh & Hudson River crosses at Burnside, N. Y., three miles South of Campbell Hall. The railroad that crosses at Campbell Hall is the Goshen & Montgomery Branch of the Erie. Also the Lehigh & New England Railroad which has trackage rights over the Pine Island branch of the Erie from Pine Island Junction to Goshen and the Goshen & Montgomery branch of the Erie to Campbell Hall and the New Haven tracks to Maybrook, N. Y. I am very familiar with this section of the country having worked three different times for the N. Y. O. & W. as a young man as a telegraph operator and got part of my engineering education (practical experience in the shops of the Lehigh & Hudson River Ry.). Then I went to school and graduated a Mechanical Engineer. My original home was Warick, N. Y., which was the general offices and shops of the Lehigh & Hudson River Ry. Well, we all make mistakes—we would not be human if we didn't.

Looking over the item of Lewis Austin and his electric locomotive, he certainly knows his engines—he is to be congratulated. On my outdoor 3/8" scale model railroad, all my electric engines are patterned after this type. They are twin motors and I find that they are very suitable for there are no leading trucks to be jumping the track when rounding curves and I have plenty of them on my line.

I use overhead exclusively (no third rail) and the pantagraphs I use I make myself and they hold up fine. Two of my engines I have had the same pantagraphs on for over eight years and they are still holding their own.

With the best of success to you and your Editorial Staff in getting out such a wonderful Railroad magazine, I beg to remain. . . . George E. Brink, Belleville, N. J.


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# Hot Under the Collar

By CHARLES A. PENN

I AM pretty hot under the collar. The reason I am near the boiling point is that I have just finished reading Mr. Waterbury's "Confessions of a Model Rail" in the September issue of MODEL CRAFTSMAN. I am mortified that such a non-constructive article should appear in this magazine, the editorial policy for which I am responsible. I am sore because it was printed without my knowledge.

Now let us get down to what Mr. Waterbury has said in his article. In the first column he skitters verbosely through numerous paragraphs about his failure as a farmer, which has no bearing whatsoever on model railroading. The statement that he sold peaches for less than the amount it cost him to spray them is no reflection on the farming industry but would cause one to wonder just how much careful thinking he puts into the projects he undertakes.

The fact that for twelve years he has been dallying with the idea of erecting a 30 x 80 foot building to house his first HO model railroad layout seems a little off the main line to me. After pondering for several years the construction of this building of Grand Central proportions and the superduper HO layout it was to house, Mr. Waterbury suddenly realized that there was no electricity on his farm and, curses, the whole thing had to be abandoned.

After this catastrophe he moved to a large middle western city (possibly to remove himself from the scene of his first tragic disappointment in model railroading) but not being completely derailed he promptly joined the local model rail club. "In a couple of years of membership," says Mr. Waterbury, "I learned almost nothing—" After resigning from the club in apparent disgust he tangled with the veteran Eric LaNal by trying one of his simple loco projects for beginners, but gave up when the plans called for a square hole in a piece of thin brass.

Then came the war, peace, retirement from business, back in New York again and, ah fate, only twenty minutes from a well stocked model railroad store! During this interlude new gauges had appeared on the scene. Mr. Waterbury hied himself down to the store to give them the critical eye. If these gauges could have sensed his thoughts they would have breathed a sigh of relief when he decided to pass them up and stick to his battle with HO.

With HO firmly in mind again he decided that a New York apartment is no place in which to build and operate a model railroad. Of course a lot of dopes have already built their O, OO, S, TT and HO layouts in apartment houses and the fact is that many of these rank tops in appearance and operation. Having discarded New York a second time Mr. Waterbury spent a pleasant autumn jeeping through New England countryside in search of a new rural setting for his long thwarted HO layout. Various "possibilities" were found to which he thought the family would be favorable so it seemed that the time was propitious for a new start on the dear old HO layout, which by now had suddenly acquired the name Highgate, Orford and Howes Railroad. And how!

Well here we go again! Model magazines and catalogs were read and reread. An 1880 style locomotive kit was selected (no doubt the world-famous Mantua Belle of the Eighties). Of course he undertook to redesign this kit before he "proceeded to put it together in one 'evening of child's play.'" It seemed that almost immediately he decided that the type in the catalog was too small and that the description did not coincide with the way he thought the kit should be built. After brooding over the fact that he had left his shotgun on the farm, he fancied the idea of forcing the writer of the catalog to eat the book at the point of a razor-sharp butcher knife. However, upon reflection he decided it would be more fun to "descend to the street and kick a few small children into the muddy gutter to relieve the strain." He complained that the catalog had intimated that a bright child or a dull adult could put the kit together in one evening. "The devil he could," says Mr. Waterbury. Without, however, classifying himself in either category, or explaining why this feat cannot be accomplished in one evening. Is he claiming to be a "bright child or a dull adult"?

I have spent fifteen years in model railroading and I have listened to every kind of gripe in the catalog. Some are justified, some are funny because they poke fun at the human frailties of all hobbyists, but many are the fruits of jangled nerves that will not let a man relax and be reasonable with his hobby. Model Railroading is a pastime, something that presents pleasant problems and it should be approached with leisurely studiousness in order to derive satisfaction and benefit from it. Too many people approach a hobby with deadly enthusiasm. They are thrilled by what others have accomplished and they tear into the subject, hell-bent-for-election and confidently expect that their feats will be heralded in the next editions of the newspapers. A hobby is unlike the recreation of a good book or play; it is something you live with from day to day, like an old friend whom you grow to like better with the passing of time. What you give in honest effort and patience to your hobby, you will reap many fold in pleasure and contentment.

Seriously we think Mr. Waterbury, like many others, approached model railroading in the wrong tempo. Don't use football tactics. Take it easy. It is supposed to relax the nerves and it is a whale of a lot of fun when one gets into the groove. For example, he complains that the loco kit he rubbed in his hair requires no soldering. Right away he screams "I can solder—I like to solder—but both my irons are in storage." So what? The kit does not require soldering. Next he calls some manufacturer a #%&c Liar. Again he yells for an anvil to turn down an HO size rivet. Unfair trade practices—"I'll run for Congress," says he. Calm down, brother, aren't you running up too many dark alleys?

Now let's take the kit I think you were beefing about. It is one of the oldest loco kits in HO and one of the very biggest sellers ever since it has been on the market. Not only that, it is operating very successfully on hundreds of club and private layouts all over the world. Its manufacturer was one of the first to pioneer HO in this country. Eric LaNal and George Stock went to him to build the first HO motor when they were introducing that gauge in this country. He has been building progressively better HO equipment ever since.

For your benefit, Mr. Waterbury, we are going to suggest that this manufacturer run some pictures in his ads of the bright youngsters and at least one dull adult (meaning myself) who have built the Belle of the Eighties from the Mantua kit with the greatest of ease. I built mine in one afternoon, without an anvil, machine shop or long distance calls to the manufacturer. I could have built it in one evening but I happened to have the afternoon off.

Note: This is not a paid ad but we do like to give credit where credit is due.—Ed.

# THE LAYOUT DOCTOR

**If you want to receive helpful suggestions on your layout, criticisms that will add untold realism to your model pike, send in a sketch of your problems to the Doctor—he will help to solve your troubles. Layout sketches accompanied with photos will get first consideration.**

**Please include as many details as possible and address your letters to the Doctor, care of Model Craftsman.**

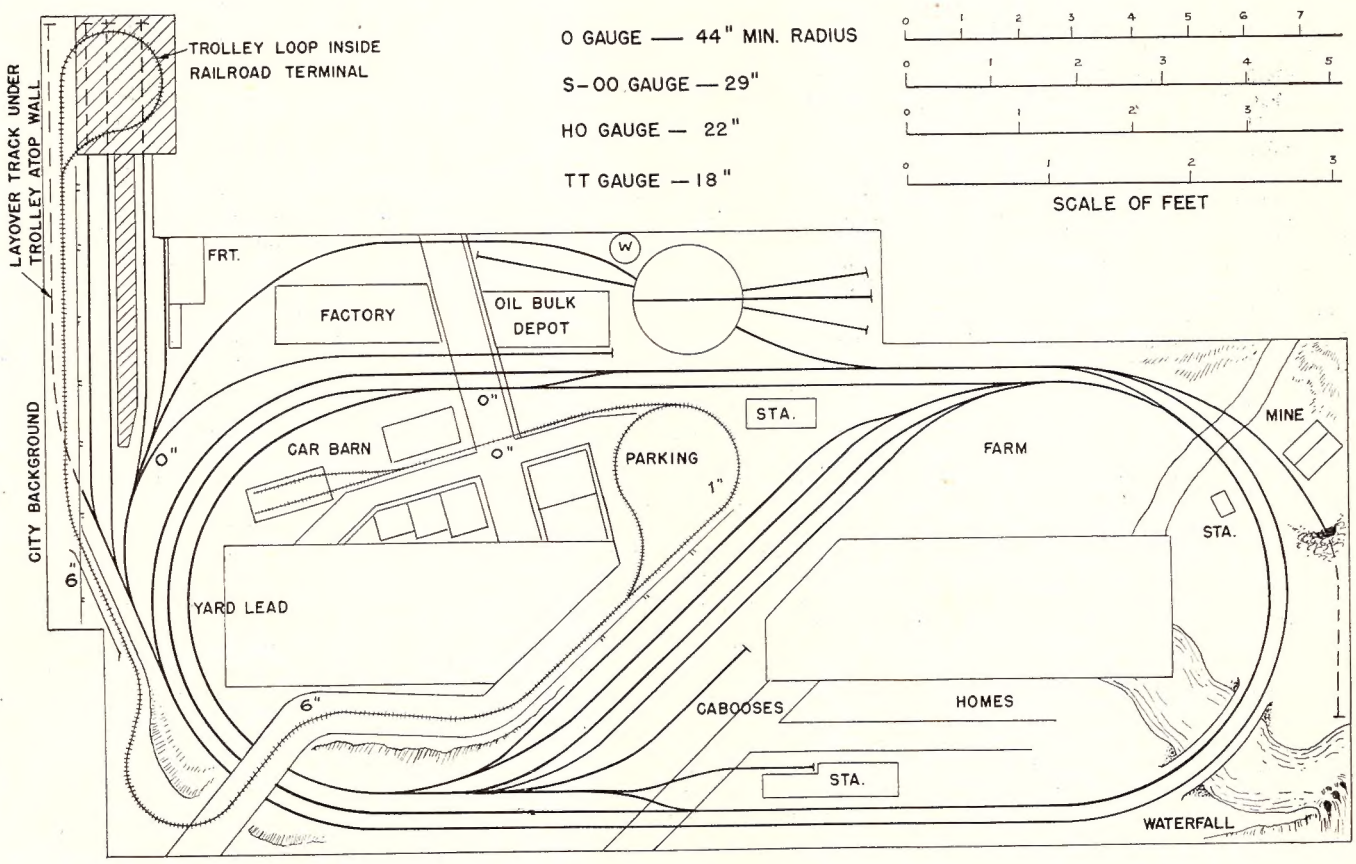
THE Minnesota Western Railroad, an O gauge pike operated these past five years by Lee J. Morrison of Minneapolis, gets first call on the Doctor's attention this month. His complaints are—"S curves, curves too sharp for a Pacific type locomotive and switches on curves hard to make stay put."

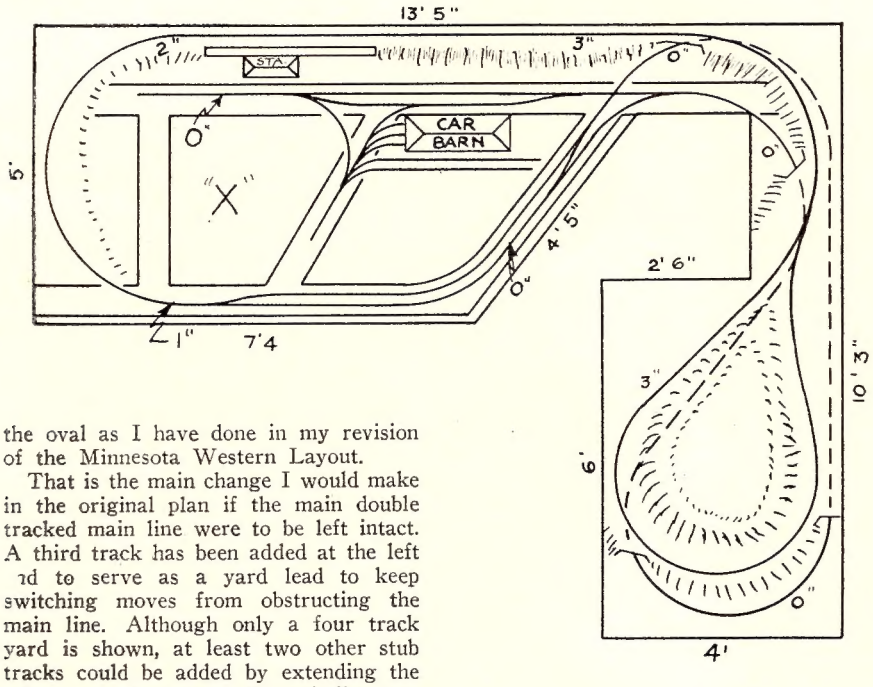
To take up the second complaint first, sharp curves are incurable in the present space for a layout. The nine foot width of the right end of the area necessitates curves of a little less radius than half of nine feet. Lee has done this with a 52" radius for his outside double track which is cutting clearances pretty close. Necessarily then, the inside double track must be of less radius and a third track as at the left end must be sharper yet. Short of finding a larger space or switching to a smaller scale than "O" gauge, all you can do is live with the sharp radius disease and try to get along with it.

That implies running only those engines that will negotiate the curves on the railroad which actually is quite in keeping with prototype practice. I have seen an O gauge Pennsylvania K-4 Pacific type locomotive take three foot radius curves with ease so I cannot see why Lee's Pacific will not take any of the curves he has in his original layout plan except possibly those at the left end of the yard. The flanges should be removed from the center drivers and necessary filing done to permit the leading and trailing trucks to swivel as much as needed to take the curves. The connection between engine and tender should be long enough to keep the rear overhang of the locomotive from pulling the tender off the track on curves.

I can see S curves at the right hand end of your yard, Lee, which you have put there in an effort to get longer yard tracks. That ladder track should make a much sharper angle with the main line even though it meant one less car on the innermost body track. The switches on curves as well as too sharp curves also occur at the left end of the original yard. The simplest answer here would be to eliminate this ladder entirely and have the yard single ended. The trouble spot on the passenger ladder tracks looks like it was caused by neither S curves nor sharp curves—I would suggest looking to the track work for the trouble spot.

The double ended yard, as I remarked in the July Model Craftsman is a luxury that few layouts can really afford because of the necessary space involved. You see the sharp curves and curved ladder track that Mr. Morrison got into! However, one way that you can have a double ended yard on a relatively small layout is to have it stretch diagonally across






the oval as I have done in my revision of the Minnesota Western Layout.

That is the main change I would make in the original plan if the main double tracked main line were to be left intact. A third track has been added at the left ıd to serve as a yard lead to keep switching moves from obstructing the main line. Although only a four track yard is shown, at least two other stub tracks could be added by extending the caboose track and another similar one down into the farmland.

At the expense of shortening the passenger tracks by half a car length, I have moved the switch from the main line to these tracks somewhat toward the top of the plan. This permits a straight passenger ladder track and also allows a trolley bridge to be placed across the corner of which more later. I have made the passenger station extension of the tablework a few inches wider than Lee shows it which can easily be done by fastening an extra strip of wood to the edge. This allows four tracks along here: along the wall is a hidden layover track to get a train out of sight for a while or to simulate interchange of cars; then comes a coach storage track and two platform tracks. The platform is somewhat skimped in width and if that annoys Morrison or anybody else who may adapt this layout, he may either scrap the coach storage track or widen the extension a few inches more.

Although I have not disturbed the facing point cross-over at the lower left of the layout which permits access to the passenger terminal, I have moved the other facing point cross-over toward the left to allow it to serve the freight lead track and also to get it out of the way of a new trailing point cross-over at the upper right corner which permits quick access from the freight yards to the engine house. A new turntable lead has also been added for this purpose.

I have swung the other turntable-roundhouse lead track toward the edge of the tablework so as to permit the placement of two industrial establishments between it and the main line—thus providing traffic for the road. I have also stuck a freight station in the corner. More traffic is provided by a mine at the upper right in the revised layout.

A passenger train of three or four long cars (or more shorter ones) originates on one of the terminal tracks and proceeds around the outer main line in a counter clockwise direction. To reverse direction, a passenger train must cross-over to the inner main line and make a reverse loop through the yard. Then it can go clockwise on the inner loop until such time as it wishes to cross over to the outer track and head into the terminal. The terminal tracks are too short to provide an engine escape cross-over so a switcher must come from the engine house or freight yard to pull out the coaches (space does not permit a terminal switching lead so the main must be obstructed) to permit the road engine to escape to the engine terminal. The coaches can then be shoved into the storage track or one of the platform tracks. Of course that through Pullman for Chicago is shunted into the hidden layover track.

A counter-clockwise freight train may pull direct into the yard from either end where its engine leaves to go to the engine house. A clockwise freight must pull into the yard lead where either the road engine or a switcher takes over the task of sorting out the cars into various tracks. A departing clockwise freight may leave directly from either end of the yard while a departing counter-clockwise freight must leave from the yard lead track.

I believe that operation will eventually fall into the convenient pattern of a passenger train running counter-clockwise on the outer main line and a freight clockwise on the inner main—with necessary routings as explained above to get back to the passenger or freight terminal. It is possible also that time will show the right hand throat of the freight yard may be eliminated making just a single ended yard with perhaps one or two tracks running all the way through.

Sectionalization of the Minnesota Western is not given by Mr. Morrison, but to him or to anyone who uses the plan, I would suggest one control for each main line track, one for the yard and lead and possibly another for the coach yard, passenger terminal and engine facilities, although these might be tied in with the outside main line.

BOB MILLER of Winston-Salem, N. C., submits the neat little five by nine foot HO gauge layout shown and I think generally speaking it is a well designed pike. I would suggest mainly the elimination of the diagonal line since the "reversal of entire trains" which Bob commends it for is of little use unless: a. they can head back into a terminal as on the Morrison layout preceding (which they cannot do here after running across this cut-off) or; b. re-reverse on another cut-off track. This would then let the factory siding back off from the shortest yard track while the coal mine siding could back off from the lumber and coal yard siding. I would also eliminate the grade since it serves no useful purpose. The yard tracks could be extended at least another car length each.

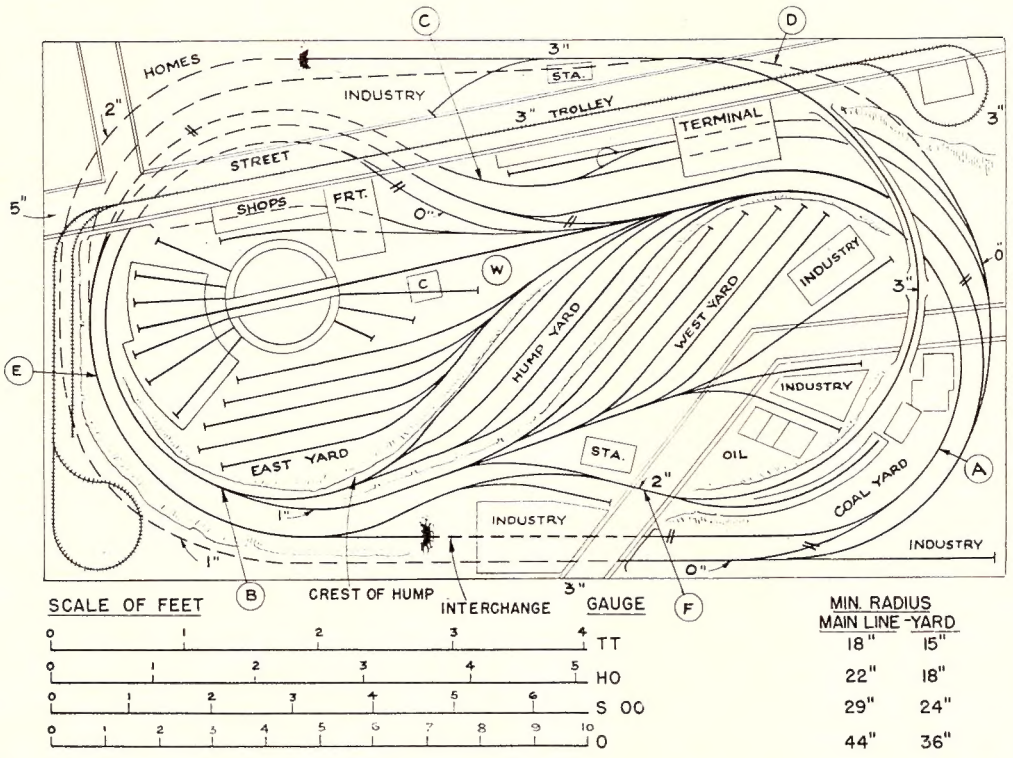
Five by nine feet, however, seems to be an area available to many model railroaders since it is, I believe, the size of a ping-pong table. Also, five feet when accessible from both sides is about the maximum width usable without a central control pit.

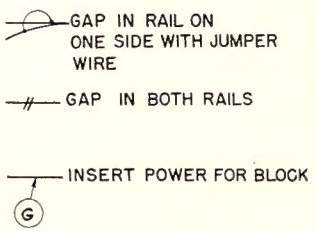
In an effort to help the many people who have a similar area available, I have figured out a two level HO gauge railroad for that space. It is the old inside out figure eight pattern with three freight yards holding over fifty cars. Before you throw up your hands in horror at three freight yards completely filling the inside of the table work, maybe I'd better explain that I really don't intend for anyone to build all three, just one or two of them, filling up the remainder of the space with other scenery such as a farm, industrial sidings, or even a large lake. I believe I would prefer what is labeled East Yard, but with the ladder about where the right track of the hump yard is—thus permitting longer body tracks in the East Yard.

A hump yard in HO scale would require some experimenting, for while it has been done successfully, more space was available. Cars too have to be very free rolling. The track at the crest of the hump yard is at an elevation of one inch. If the track then broke away sharply downhill, I believe cars would roll to the ends of the short body tracks where the grade was very slight. An uncoupling ramp could be placed at the crest.

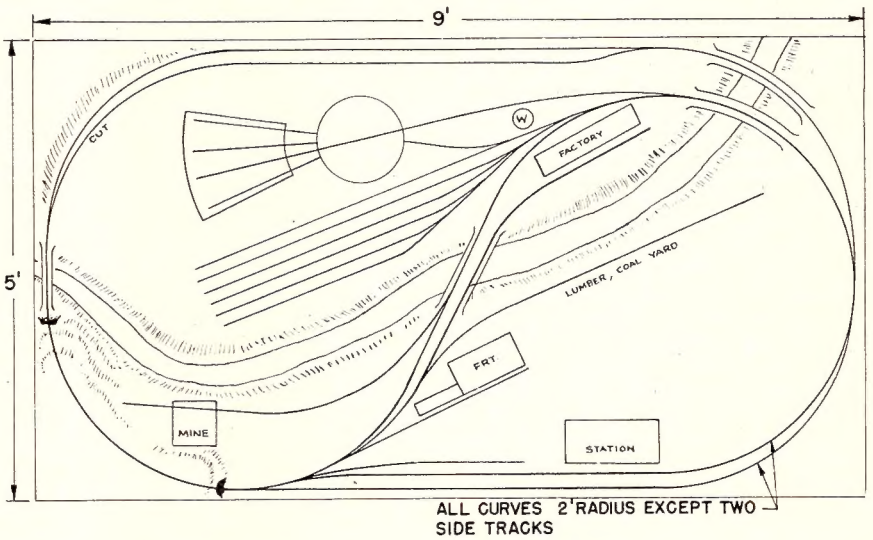
While this layout appears to be the standard inside out figure eight, in actuality, an even longer run is possible. Picture a train climbing the grade past the coal yard at the lower right. It crosses a street with trolley track at grade, then goes down grade and through a very long tunnel to emerge next to the coal yard but at a low level. Here it takes the outer of the two tracks available and loops around through the passenger terminal to the interchange track switch at left front. Here it may curve left and make the same figure eight again, or may keep straight on through the interchange track and around the lower level again on the inner track which really is a switching lead. So you can go *three* times around at some sacrifice in realism.

Freight trains can be made up or broken up in the yards, depending on which one or more is built. The long lead track mentioned above, however,




*On the left is the revised 5' x 5' HO gauge layout of Bob Miller, below is the original.*




will make this job much easier to do without blocking the main line. The passenger coach storage lead extends into a tunnel which can serve as a second hidden layover track to some extent although a full fledged one is provided under the high level.

There is space for a relatively large roundhouse with adjacent shops. One freight station track here extends into the shops, another along side them for stores. A short radial track from the turntable crosses this latter track to roll wheels from storage rails across the turntable pit into the shop.

Control sections are indicated with arrows flagged with letters showing between which switches power must be inserted. According to my scheme, the only switch that needs a single gap and jumper wire is the Railway Express Agency siding at the terminal. Sections A and B are the freight yards and leads. If only one yard is built, these may be combined, although the hump yard will require both since it is in effect a reverse loop. Section C is the coach yard lead while D is the layover track. E is the main line through the yard area while F is the rest of the main line. "Gapping" for two rail is also indicated on the plan and, except for the one single gap and jumper mentioned, it is all just gaps in both rails at ends of control sections.

I would call your attention now to the trolley lines in both layouts. Both car lines are essentially alike, a long single track with a reverse loop at each end and barn appended. They were put in to show you that a trolley line can be added to *almost* all layouts if some ingenuity is used to fit it in. The type used in these layouts is usually the easiest.

Notice that each car line has a reverse loop at each terminus. Often, of course, prototype trolleys simply ran to a stub end terminal in the street—that is, the track just stopped and the conductor got out and changed the poles while the motorman took his reverse lever and walked through the car, flipping the seats as he walked. However changing poles by hand at the end of such short trolley lines is not feasible as most model railroads would really require a separate operator. Real lines, when possible, use (and used) reverse loops, especially after one man operation became popular. These loops, as shown, as well as all other curves are of such dimensions as to permit the operation of four wheeled, single truck cars, kits for which are available in both HO and O gauges. Eight wheeled car operation would require some checking up and experimentation.

The Minnesota Western's car line starts at a loop hidden inside a large railroad terminal building out over the railroad tracks—ostensibly the line just runs past the station, the cellar wall notwithstanding. It runs along a street atop the hidden layover track, then angles off into a corner left by the railroad line where it straightens out and crosses the railroad on an overpass. Then it ducks down a hill alongside the yards to loop at the suburban station where there is a spur to the car barn.

The HO layout's car line runs along the diagonal street atop the wall. It starts at a reverse loop at upper right, crosses the high level track of the railroad at grade, passes the railroad terminal, an industry, the freight station, shops, homes, etc. until it comes to the car barn where it swings in. The one barn track may serve as a hidden layover track for the trolley until it goes out back to another reverse loop and so back over the same route.

# BELLOWS FALLS

BACKWOODS flavor this month. We'll forget about modern railroading with their streamliners and heavy tonnage freights and take a look at Bellows Falls, Vermont. Two roads cross each other at this busy little junction town. First and foremost is the important main line of the Boston & Maine's Fitchburg Division. Then there is the B & M's Cheshire Branch connecting Bellows Falls with Boston.

However, suppose we leave the Boston & Maine to Brer "Off again—On again —HO again" Austin and concern ourselves with the Rutland of which precious little has been printed in the model magazines. As a matter of fact, I haven't seen anything on the Rutland except a series of articles in the MODEL CRAFTSMAN (*natcherly*) printed way back in the summer of 1936. The drawings, about a Rutland work train, are reprinted in the MODEL CRAFTSMAN Plan Package in case you're interested.

Bellows Falls was the last stopover point on the three day New England rail ramble made by Casey Gilbert, Stan Bradley and myself last year. Casey wanted to see the Rutland and Stan and I agreed that it would be a good idea.

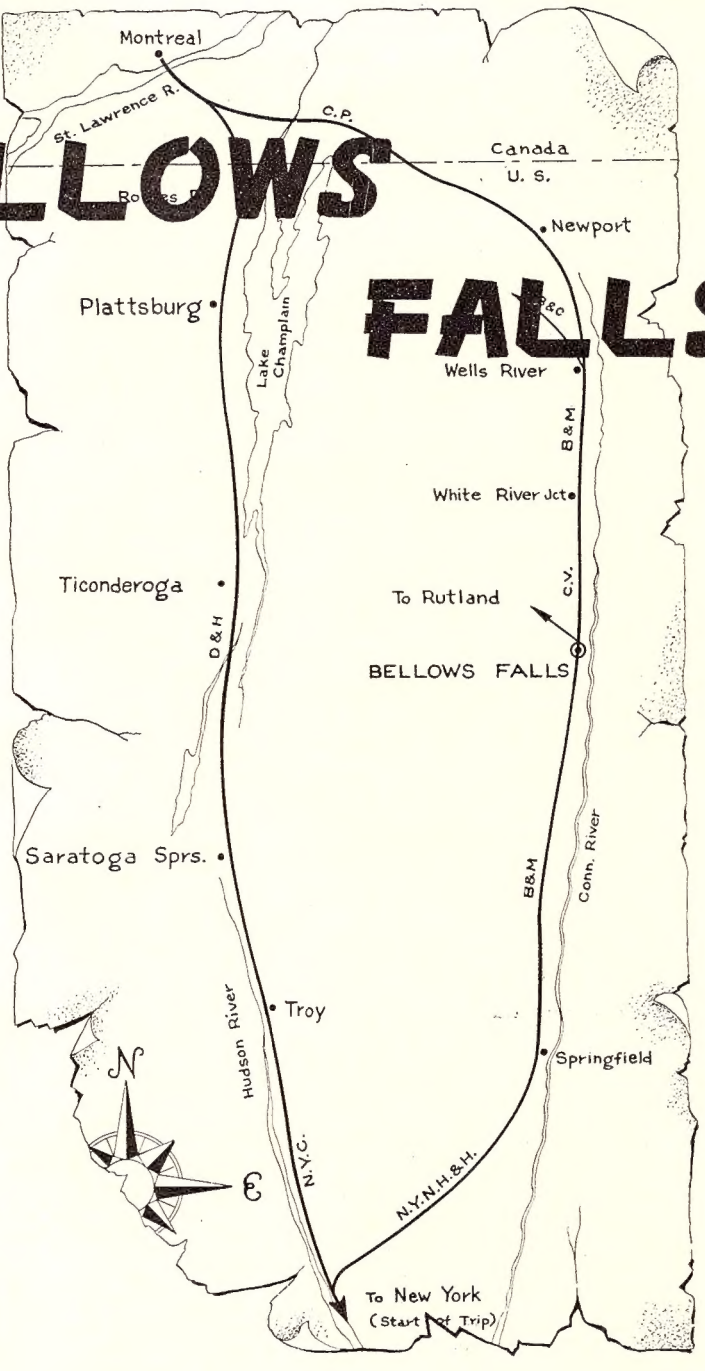
Bellows Falls is located on the Vermont borderline. Just across the Connecticut River, and within easy walking distance, lies New Hampshire and another B & M engine terminal. Certainly the B & M terminal was busier and more modern but the Rutland roundhouse was the place that struck our fancy.

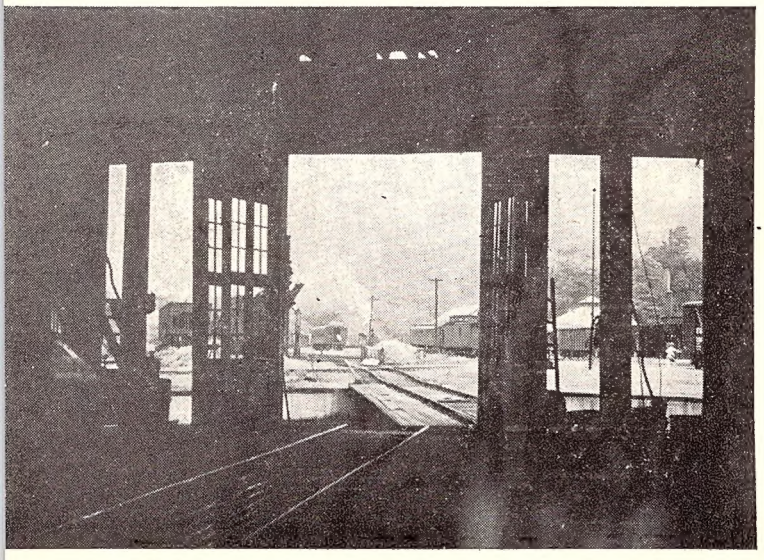
Generally speaking, the Rutland is shaped like a "Y." The split is made at Rutland, with one line wandering down towards New York State and the other line stopping at Bellows Falls. The line from Rutland to Bellows Falls is a bit over 52 miles long and is a rail fan's dream—at least from what we saw of it.

The first thing we noticed as we got off our train was the low, rambling station which faced both the B & M line on the West and the Rutland-Cheshire Branch on the North. In front of the station stood an ancient ball type signal which is still in use. It was the third one we had seen on the B & M, the others being at Wells River and White River Junction.

Diagonally opposite the station stood an ancient weather beaten four-stall wood roundhouse. Just in front of the roundhouse is the old Armstrong turntable which just comfortably holds one of the Rutland's sleek Alco ten-wheelers. I think a lot of you will agree that this set-up could be modeled very nicely in any of the popular gauges. Free lancing a bit, we could utilize the old Ideal roundhouse and lop off the uppermost part of the roof to flatten it. Then cover up the side windows with balsa or bristol board and cover the whole thing with Willie K. Walthers clap board siding. Dirty the clapboards after they've been cemented on with gray-black water paint. It's got to be good and dirty.

Red Ball (M. Dale Newton) has just put out an 85 foot turntable which would do pretty well to turn your engines. Should this appeal to you, measure your longest engine with a scale rule first and see if the blamed thing is over 85' long.



If it is, you'd better build a more modern terminal anyway.

From the turntable, the track crosses the B & M main line and crosses a cinder pit, next to which is a stub end siding depressed several feet on which a cinder car is parked. A few feet further on there is a small coal tower and a water stanchion. The water tower, leaking like a sieve from all it's joints, stood right next to the B & M tracks. A small shack held the sand needed by the engines. The idea of having the lead track cross a main line was unique to my experience and shows what a model railroad fan can do to save space and still be following prototype practice.

Right in back of the roundhouse is a river and railroad bridges are to be found on both sides of the structure. This, I believe, is also unique in prototype practice. Even the Layout Doctor couldn't have utilized the existing trackage to better advantage.

There's a small yard opposite the station in which Rutland Yard Goat #105, a venerable 0-6-0 wheezing from every joint, was shunting cars around. We spotted some interesting milk cars in the yard along with an ancient wooden coach and a few box cars. An ideal set-up for all modeling purposes.

*Rutland #77, sleek Alco ten-wheeler, reposes briefly on the Armstrong turntable as she is turned around. Note the resemblance to the New York Central's F-12 class engines. This ancient roundhouse in the background together with a diminutive coal tower form the main portion of the Rutland's engine facilities at Bellows Falls.*

# VERMONT

By **HAL CARSTENS**

*"The Northwind," B & M train #77 Northbound. This loco sure does look out of place. Note the water tower at extreme left and in the background the old ball-type signal and the ancient buildings. This setting is a modelers dream—there's a world of detail just waiting to be modeled.*

*The railroad station at Bellows Falls serves both the Rutland and the Boston & Maine—Central Vermont. Mountains in the background are over the border in New Hampshire. Note the old ball-type signal in front of the station and the trackwork.*

THE boiler of this Southern Pacific Switcher is simple to model. The boiler has no taper which makes it possible to build it up out of thin-walled brass tubing. The reason for using thin-walled tubing is that it makes it possible to make the boiler and firebox in one piece as the drawing shows.

Start constructing the boiler by cutting the 1 3/16" tubing to the length shown on the drawing and square up the end that will be fitted to the smoke-box. The smoke-box is then made out of brass rod. It will have to be turned on a lathe in order to make the step where it will be fitted into the boiler and also to shape the front end to represent the smoke-box front. If you have no lathe, I am sure that you know someone who has one and will be happy to do the job for you. Note that the smoke-box is drilled out with a ½" drill in order to lighten it and make it easier to solder the details

# Southern Pacific 0-6-0 Switcher

**PART III**

**By LEWIS AUSTIN**

to it. If the smoke-box were left solid, it would require a great deal of heat to solder anything to it.

When the smoke-box is completed, solder it in place on the boiler by holding the assembly over the flame on the gas range and flowing solder into the joint. The excess solder can be scraped and filed off the joint. Then clamp the boiler and smoke-box in a "V" block and lay-out four centerlines on the boiler. One at the top, one on the bottom and one on each side. Lay out the front of the firebox and scribe a line around the bottom of the boiler from one of the side centerlines to the other. When laying out anything on the boiler, always work from the front end so that all the dimensions are kept in relation to each other. Make a thin sawcut along the line scribed for the firebox right to the side centerlines of the boiler. Then make another sawcut from the back end of the boiler along the bottom centerline. Saw right into the other sawcut that was made across the bottom of the boiler. The sides of the firebox can now be bent out as shown on the drawing. File the bottom edges of the firebox to the shape shown on the side view of the boiler and also file the back end of the firebox on a slight angle as the drawing shows. Saw and file out the opening in the bottom of the boiler to provide clearance for the motor and worm. This completes the boiler.

The stack and domes are made next out of brass rod. Note that the stack is drilled out to accommodate the long flat-head 2-56 screw that is used to fasten the superstructure to the cylinder block. It is not necessary to turn these small parts in a lathe, just clamp the rod in a drill press chuck and shape the domes and stack with a file.

Lay out the locations of the stack and domes on top of the boiler. Then, cut four discs out of 1/64" sheet brass, bend them to fit the curvature of the boiler and solder them in place right on the stack and dome locations. Holes are drilled and filed right through the discs and boiler to fit the stack and domes. Solder the stack and domes in place leaving a neat fillet of solder around the bottom of the domes. Be sure that the solder flows right down into the holes so that the stack and domes are held securely.

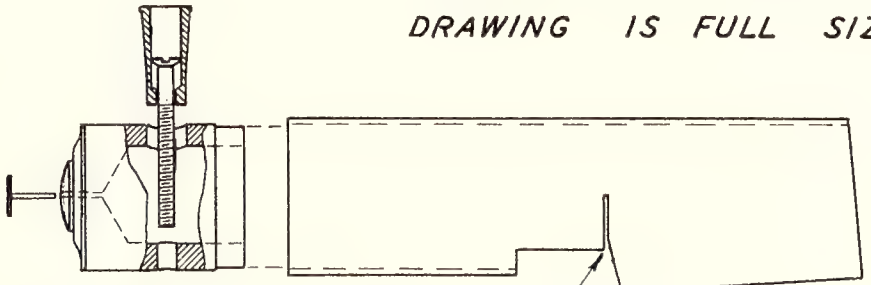
The headlight is simply a piece of brass rod with the end drilled out to accommodate the lens. The visor on the headlight is filed right on it. You may as well make two headlights at this time for you will need another to mount on the tender as a back-up light. Solder the headlight in place on top of the smoke-box. A 3/32" hole will have to be drilled in the underside of the smoke-box. This hole must line up with the hole through the stack. When this hole is drilled, the boiler can be mounted on the mechanism to make sure that the fire-box fits over the motor and worm. You may have to file off the ends of the two rear domes where they project into the fire-box to clear the top of the motor. When you are certain that the boiler and fire-box fit the mechanism perfectly, you can proceed to finish the superstructure.

The cab is built-up entirely out of 1/64" sheet brass. The sides and roof are made in one piece as the drawing shows. Lay out the cab parts on the sheet brass using the full size templates on the drawing. Before cutting out the parts, cut out the window and door openings. This is done easily by drilling a #60 hole in the corners of each opening. Then clamp the brass in a vise so that one side of the opening lines up with the edge of the vise jaws . A small chisel is then used to cut through the opening. Turn the piece in the vise so that the next side of the opening lines up with the vise jaw and do the same thing. Do this all around each opening. The edges can be cleaned up with a small fine file. This method is a great deal easier and faster than drilling and filing out the openings.

After the openings are all cut out, the cab parts can be cut and filed to shape. Bend the roof and sides to fit the ends of the cab. The sides of the cab may hang down a bit below the ends but this is just excess material that can be filed off after the cab is assembled. This excess material was left on the template to make certain that the cab sides would not be too short after the roof is bent to shape.

# SOUTHERN PACIFIC 0-6-0 SWITCHER

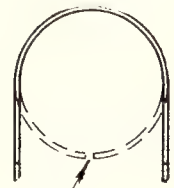
DRAWING IS FULL SIZE FOR HO GAUGE



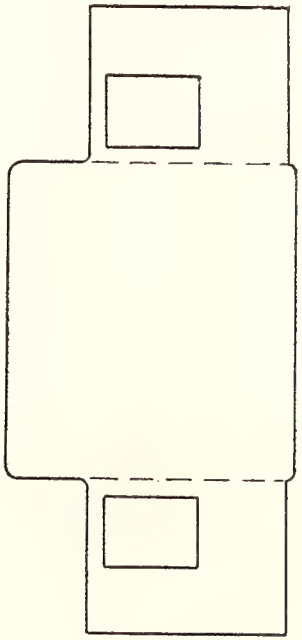
CUT-AWAY TO SHOW MOUNTING SCREW

SAWCUT

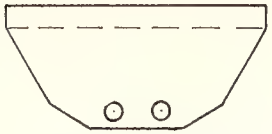
## SMOKEBOX AND BOILER DETAIL



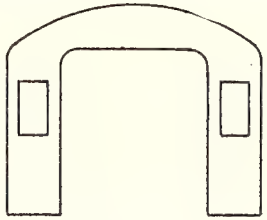
SAWCUT IN TUBING



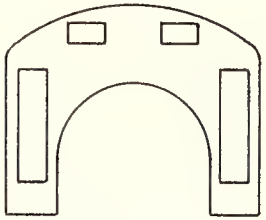
SIDES AND ROOF



REAR SUPPORT TEMPLATE

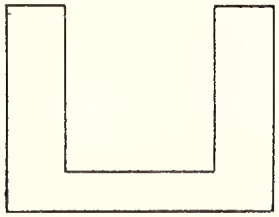


REAR



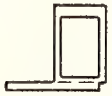
FRONT

## CAB TEMPLATES

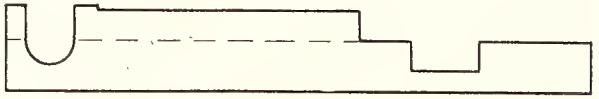


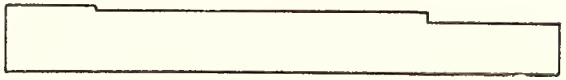
CAB FLOOR

DOOR



WINDOW





BOILER WALKS

L. AUSTIN

Solder the end of the cab in place on the firebox before soldering the cab together. In this way you can do all the soldering from the back end of the cab end and you will not have to clean off so much excess solder. The rear dome is pretty close to the cab which would make it almost impossible to solder the cab end on from the front side. When the end of the cab is soldered in place on the firebox, solder the roof and sides to it and then solder the rear end of the cab in place. Be sure that the cab is mounted square and true with the boiler. The cab doors and window sash are cut out of 1/64" sheet brass to the shapes shown by the templates. Also file the hatch to shape out of 1/16" thick brass and solder it in place on the roof.

Solder the doors and window sash in place and the cab is completed. The photos show my model with rain gutters on the cab roof but the prototype does not have them so it is not necessary to put them on. I just put them on to dress up the cab.

The walks along the boiler are made out of 1/32" sheet brass. Note that one walk is straight and that the other one has a step directly in front of the air pumps. It also is bent up at an angle to meet the boiler as the drawing shows. Cut the walks to the shapes shown on the drawing and solder them in place on the boiler. The floor of the cab is also cut out of 1/32" sheet brass and soldered in place under the cab.

Make the rear support for the cab out of 1/64" sheet brass and bend the top edge as shown. Mount the boiler and cab on the chassis with the long 2-56 screw through the smoke-box. Make sure that the boiler lines up properly and then fasten the cab support to the back end of the frame with 2-56 screws. This will hold the rear support in its correct position under the cab and it can be soldered to the cab floor.

The small steps at the ends of the walks are bent to shape out of 1/64" sheet brass. Solder them in place and solder a 1/32" by 1/64" strip of brass behind each one to act as a brace.

The tanks under the cab are cut to length out of 1/4" diameter brass rod and soldered in place. Solder 1/32" wide by 1/64" thick bands around them to represent the straps that they are hung on. The number plate on the front of the smoke box is simply a brass nail soldered in place in a hole drilled in the smoke box front.

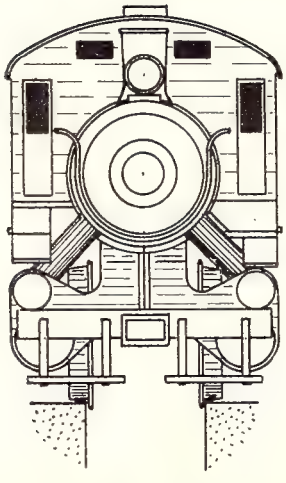
All that remains is to put on the power reverse cylinder, air pumps, bell, handrails and piping. The air pumps are mounted in a hole drilled and filed in the walk. Castings are available for the air pumps and power reverse. The power reverse is mounted under the walk as shown.

Drill holes in the boiler and smoke box front for the handrail posts and press them in place. Do not worry if they are a little loose for when the handrail is in place it will hold them securely. Mount the piping on the boiler before putting on the handrail. All the piping is made out of #70 wire.

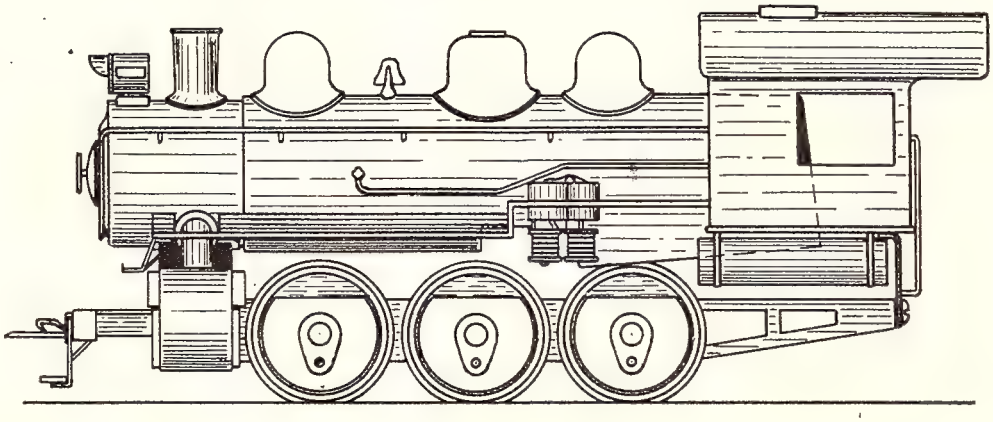
The bell bracket is soldered in place on top of the boiler. A hole can be drilled in the boiler so that the bell bracket can be held in place with a small rivet while it is being soldered. The handrails on the rear of the cab are bent to shape out of #70 wire and soldered in place in holes drilled in the cab and rear support.

This completes the superstructure and it can be painted with flat black paint and mounted on the chassis.

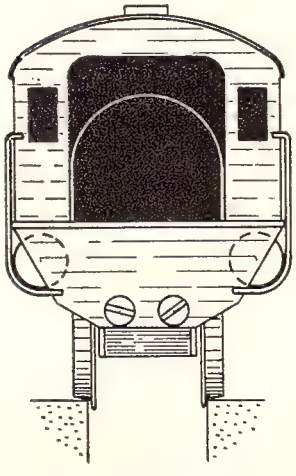
## SOUTHERN PACIFIC 0-6-0 SWITCHER



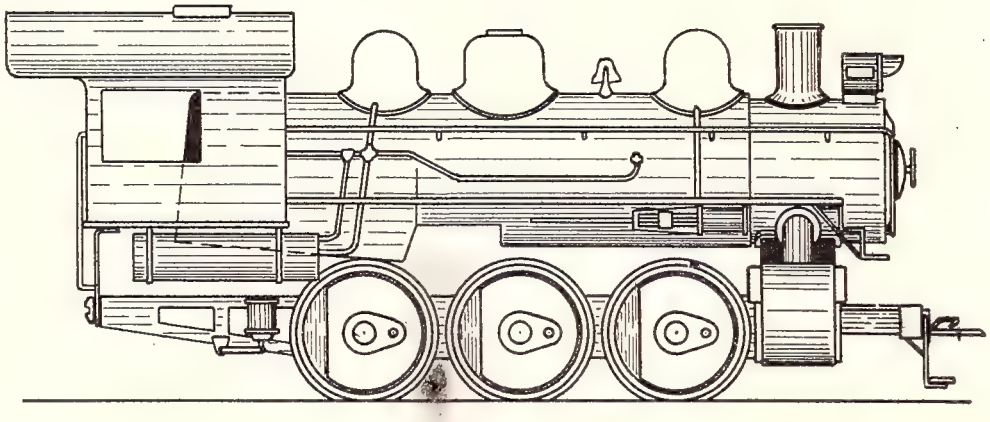
FRONT VIEW



LEFT SIDE



REAR VIEW



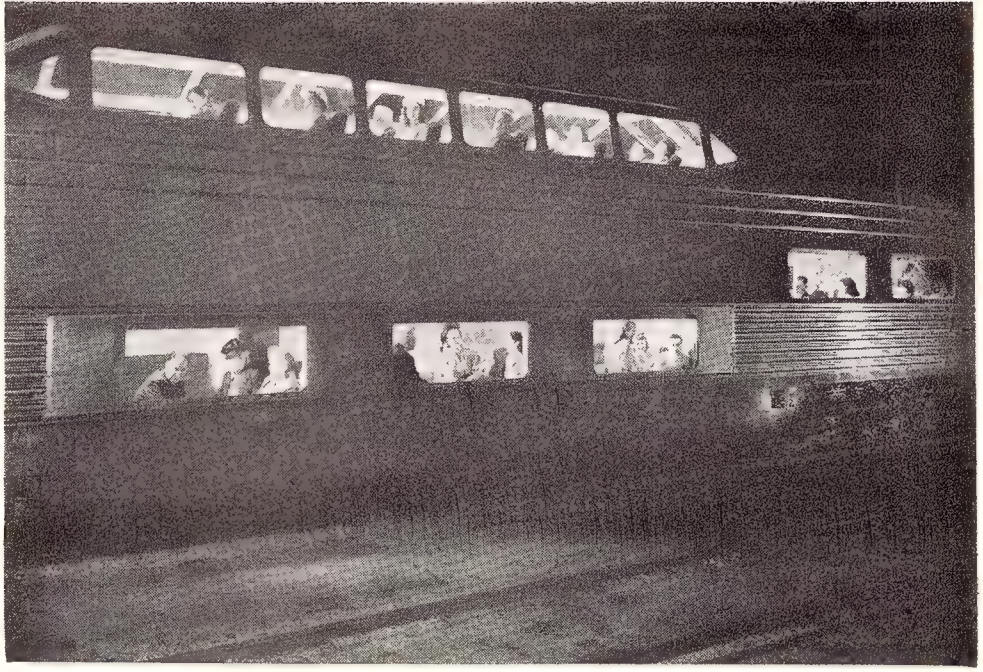
RIGHT SIDE

railroad was the safety aspect of the glass to be used. Thermopane was finally selected. This consisted of two sheets of glass separated by a dehydrated air space hermetically sealed to increase the effect of the air conditioning. The outer glass is heat absorbing and glare reducing, heat treated for extra strength. The inner sheet is similar to automobile safety glass (a double sheet with a middle layer of plastic). This glass withstood tests as well as steel plate.

Included in this description of the cars is the actual interior color scheme. This is for the benefit of modellers who care to add interior detail to their projects. The exterior of the train is greenish-blue and silver as mentioned last month.

### Chain Car—"STAR DUST"

Each chair is adjustable to nine positions and is of the famous "Sleepy Hollow" design. The car contains 72 of these ultra modern seats—24 in the Astra Dome, 28 in the forward and rear sections and 20 in the depressed lower level beneath the "Dome."



# Train of Tomorrow

By WALTER A. MUSCIANO

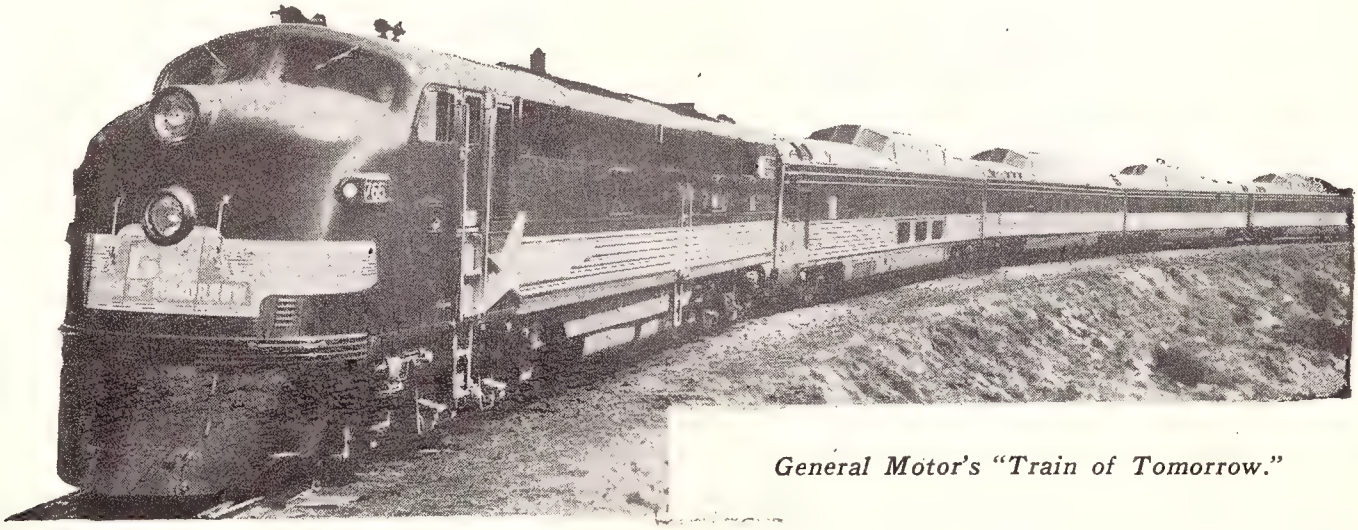
This latter lower level consists of three semiprivate compartments, two of which seat seven and the other six persons. Furniture in the two larger spaces is light blue and walls are light grey-peach. Peach carpeting is used, ceilings are brown while in the remaining space it is blue.

The forward main section has 16 chairs arranged in pairs on each side of the aisle. The rear main section has 12 chairs arranged in a similar manner. Yellow is used on the ceiling and the wall is sectioned in grey and yellow. A diamond pattern of grey and green is used on the seat upholstery. Light tan is used on the Astra Dome walls and metal structure. Carpeting is green and chair covering is rose. The chairs in the Astra Dome have a slightly shorter back in order to insure unobstructed vision because of the roof height.

Two lavatories are located at the front end of the car and two dressing rooms at the opposite end. The space on either side of the rear exit is occupied by luggage compartments which are loaded and unloaded by a porter through an outside hatch thus eliminating the blocking of aisles. This car weighs about 80 tons when loaded.

### Dining Car & Kitchen—"SKYVIEW"

Table service is available on three levels and the capacity of the dining car is 52. The main section is at the rear, seating 24 persons. One side of the car is made up of tables for two and the other side of tables for four. The smaller tables are triangular and have



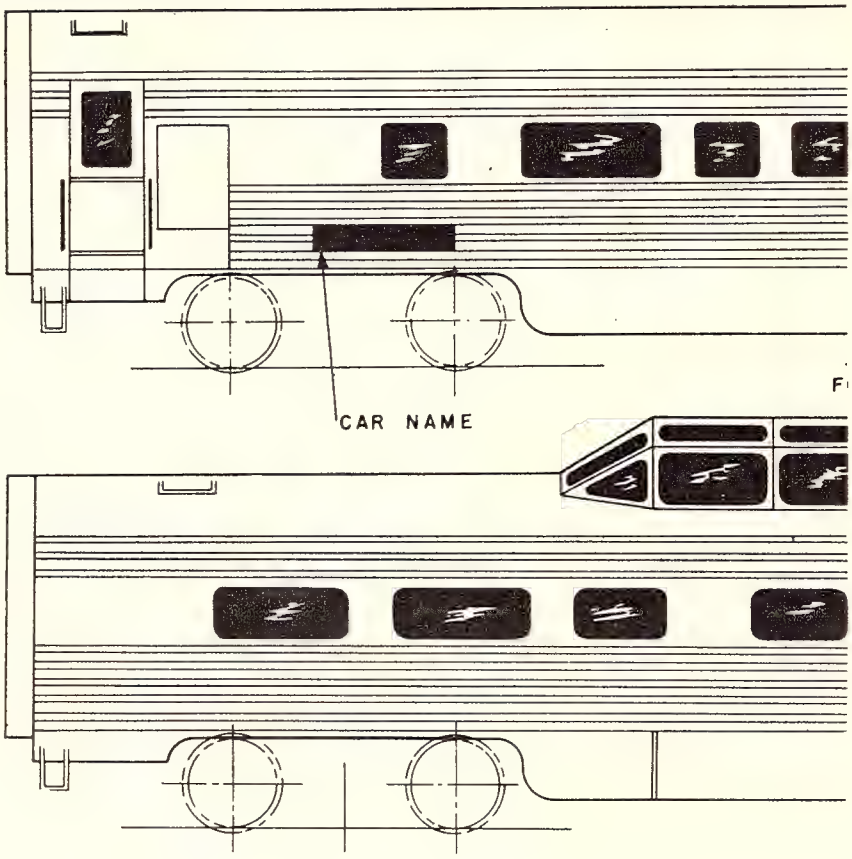
*General Motor's "Train of Tomorrow."*

same type of seats are used on the wall side of the larger tables. A built-in service island is located between each two tables. Ceilings and walls are parchment color while carpeting is again peach. Walls and partition at the end of the car and the Astra Dome stairway are natural oak. Chartreuse is the color of the built in wall seats.

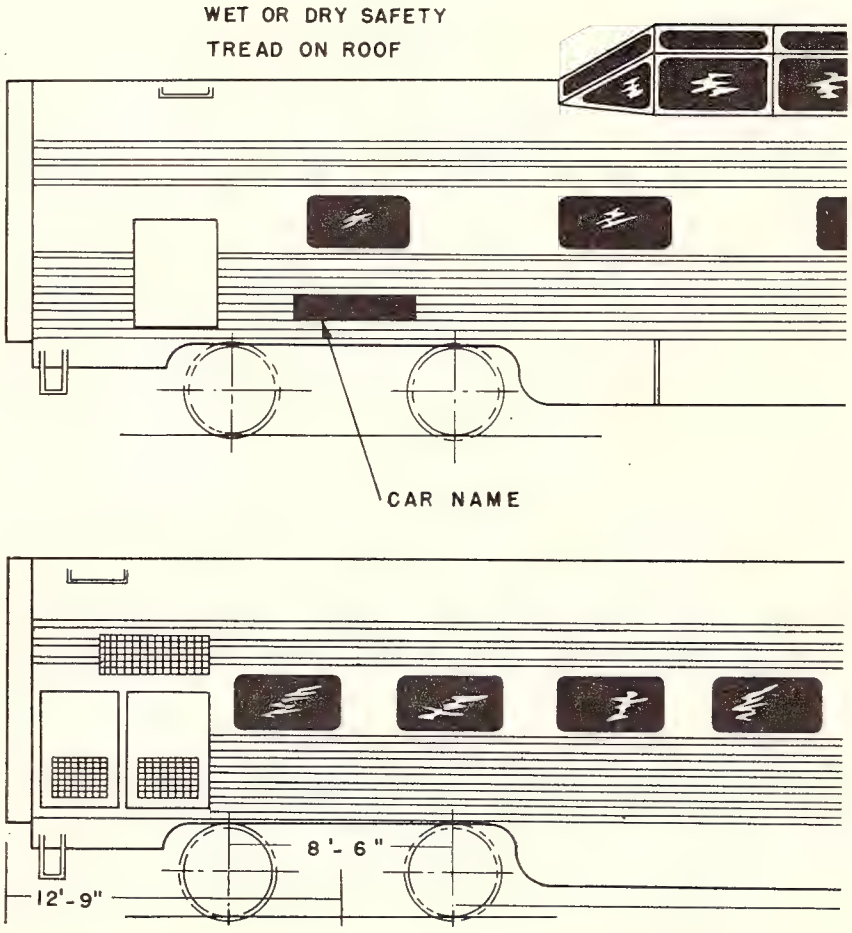
Capacity of the Astra Dome is 18. The aisle is off-center similar to the main section with tables similarly arranged. A dumb waiter is used to supply this section with meals. The serving cabinets are light blue. Seats are brown with backs of tan. There is a built in lamp at each table. A china locker, refrigerator, toaster, coffee maker, etc., are provided in the forward space of the Dome.

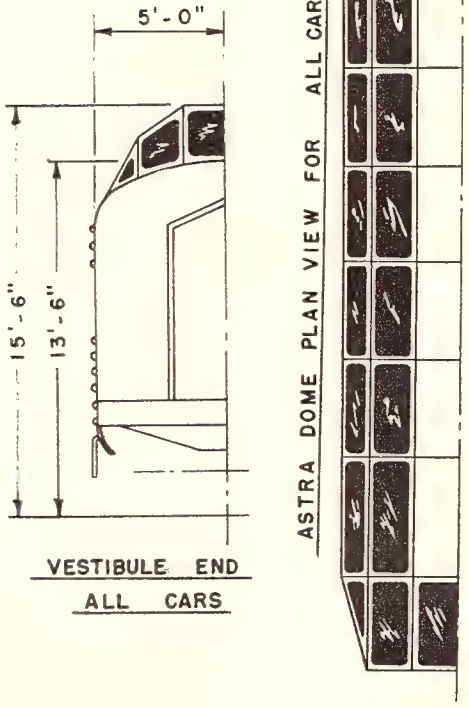
The recess directly beneath the Astra Dome is a private dining room which seats ten persons in two groups of five. Upholstery is coral and carpeting is turquoise. The ceiling is colored ivory and the walls are a red, green and blue floral pattern. This compartment is reached by an illuminated glass step.

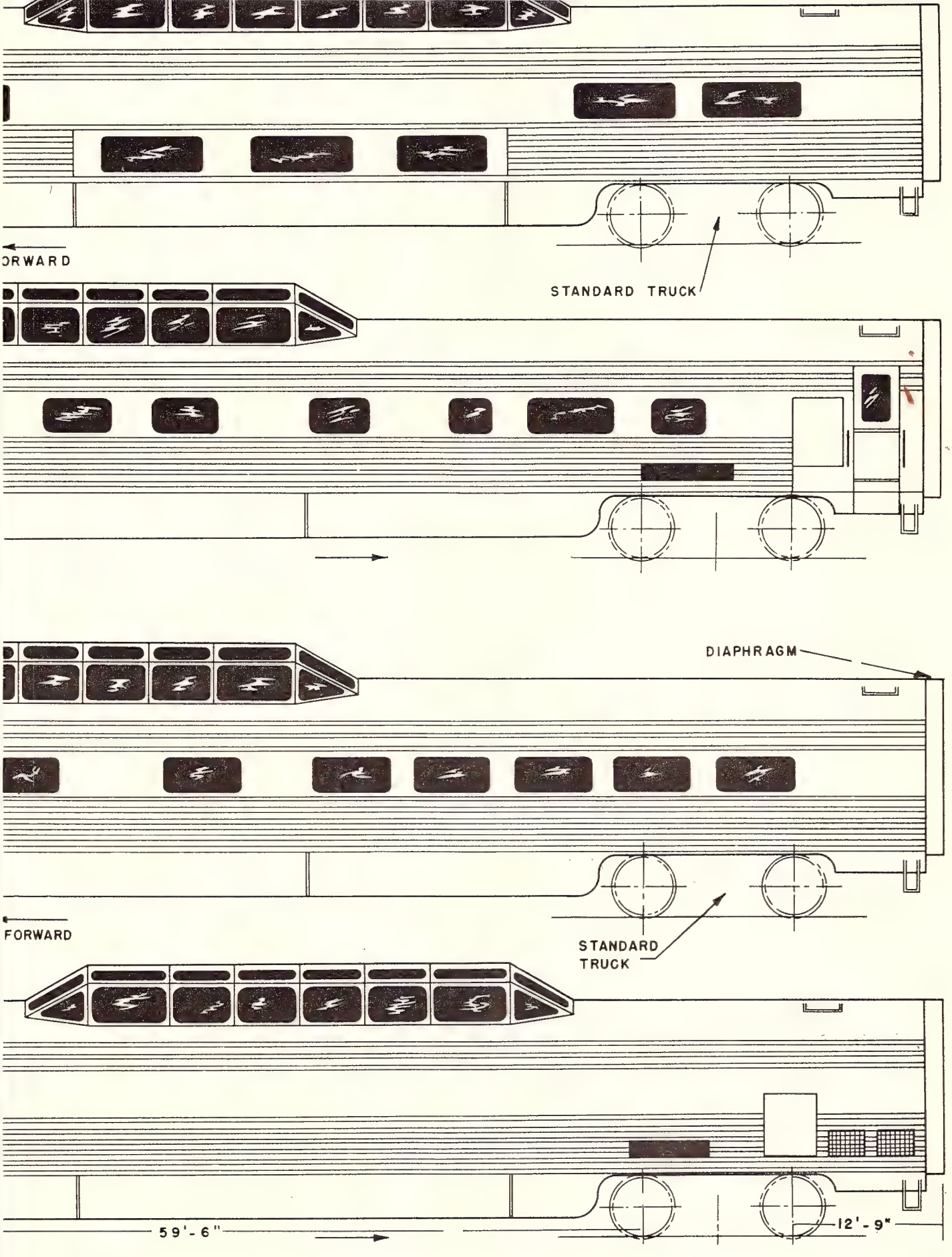
This is the first railway dining car to be equipped with an all electric kitchen. The latest equipment available was installed. Refrigerators, ranges, freezers, dish washer and garbage disposal unit are operated by the diesel generator in the car itself. The kitchen crew lavatory is located between the dining room and the kitchen just off the main passage. The loaded weight is ninety tons.

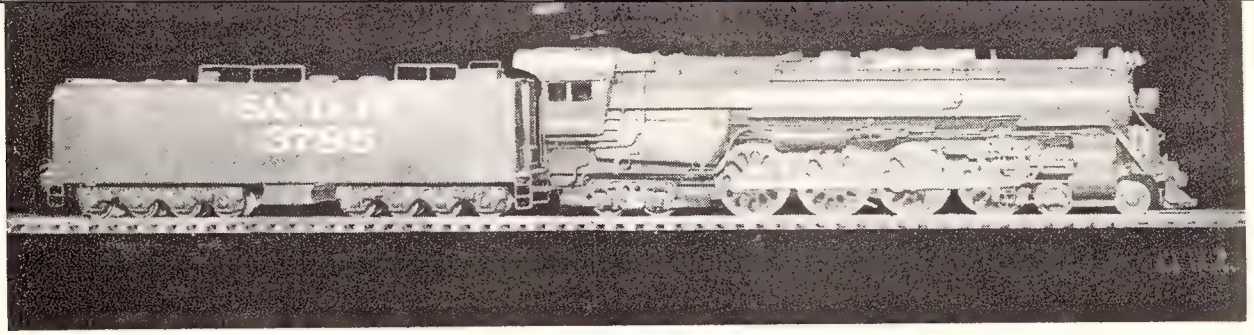



## PLANS FULL SIZE HO



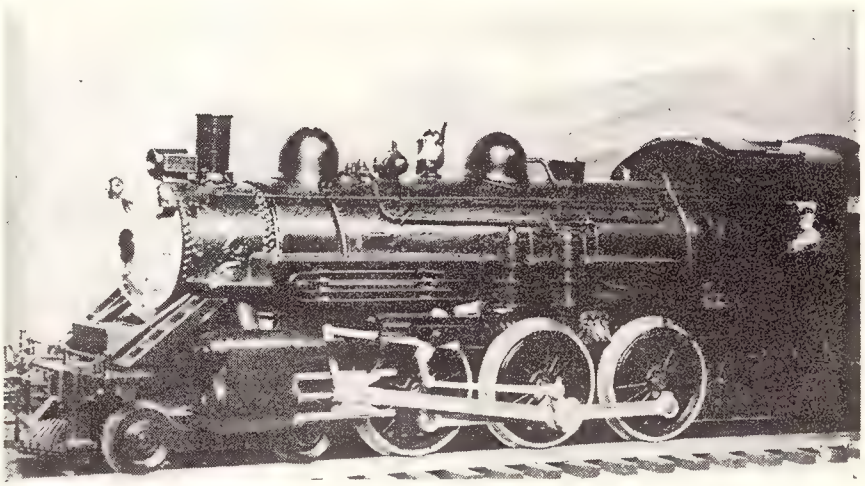



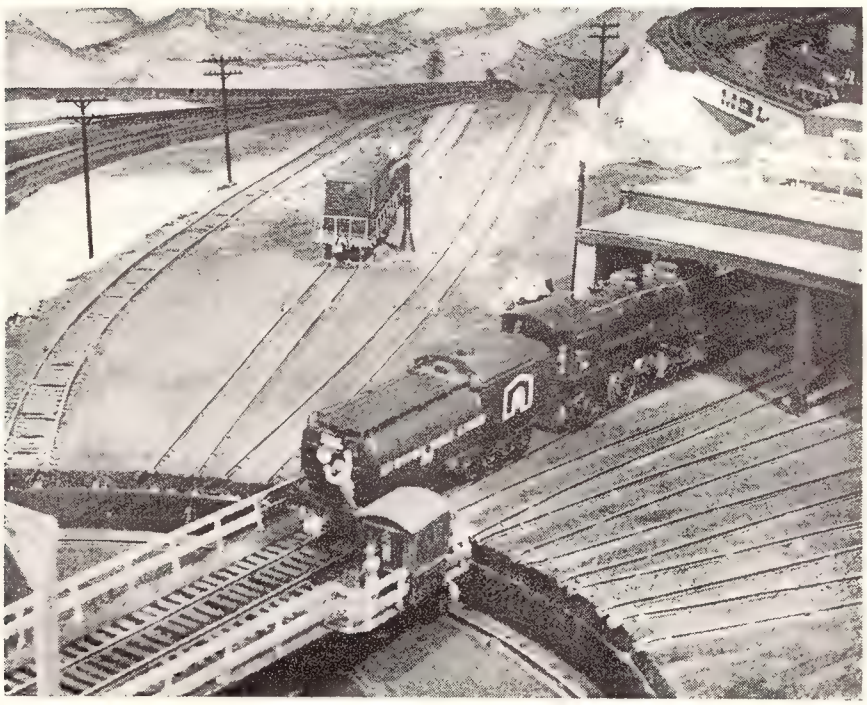

ORWARD
STANDARD TRUCK
DIAPHRAGM
FORWARD
STANDARD
TRUCK
59'-6"
12'-9"



*Power to spare with this 4-8-4 as built by R. B. Sutphen and Sam Raymond of Los Angeles. This realistic locomotive was modeled in HO gauge with no skimping on the details.*

*This is a builders ¾ length photo of the newest piece of power, not yet given a road number, for the Washington Division of the Great Northern, an O gauge road ably managed by C. L. "Bud" Tilbury of Spokane, Wash. The basic material is a Varney Deluxe kit, extra deluxed by the builder, spray painted to a degree which makes it a real show piece. It runs as fine as it looks. Note added tool box on pilot, very realistic air and steam hose alongside fireman, Vic Close, in cab who quickly set up camera for this shot and then jumped into the cab to make a self portrait of the Ten Wheeler and himself.*

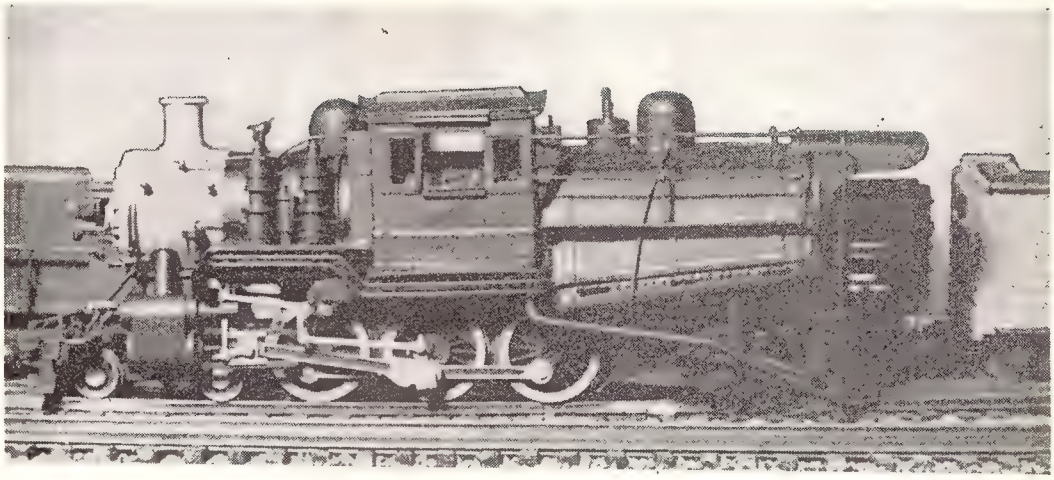




*Action aplenty on the Mission Bell Lines of R. E. Sanders, San Gabriel, Calif. Here a Pacific in HO gauge is seen entering the roundhouse on well-worn rails. Desert dust is everywhere—most of the ties have already been covered up.*

*This is a small section of the HO layout owned and operated by R. B. Sutphen and Sam Raymond and located at 324 North Larchmont in Los Angeles, Calif. Note the variety of equipment included here—everything from tiny switchers to the powerful diesels of today.*

*This Camelback in HO gauge was the first built-up loco made by Joe Jones of Morristown, New Jersey. The chief items in the construction of this baby were trial and much error. It was made from photos of a Lehigh Valley engine and some radical changes were made just for eye pleasure. Many model manufacturers have their products included in this loco, according to Joe when he describes the construction it sounds more like a roll call of model firms.*



## WANT THREE BUCKS ?

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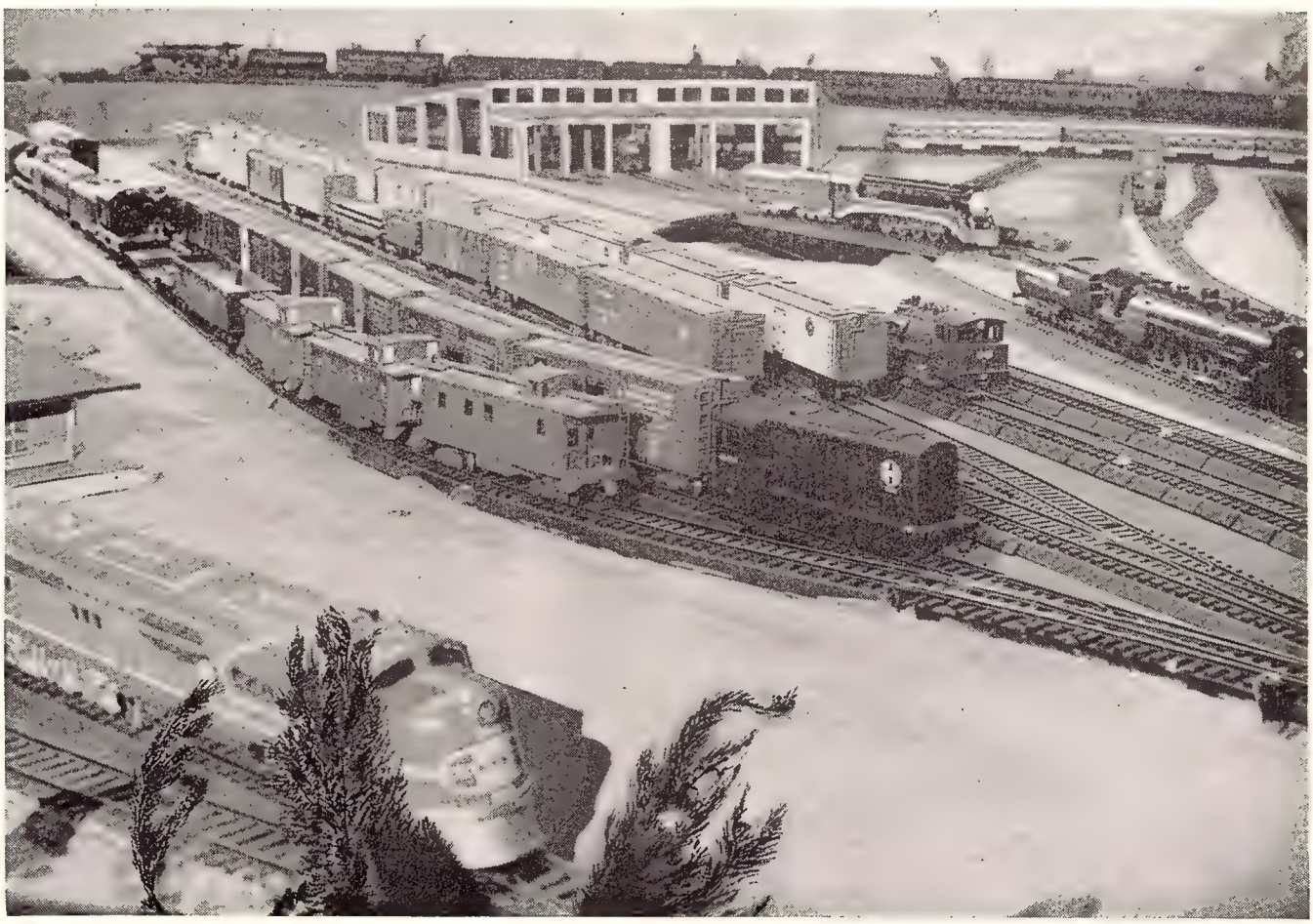
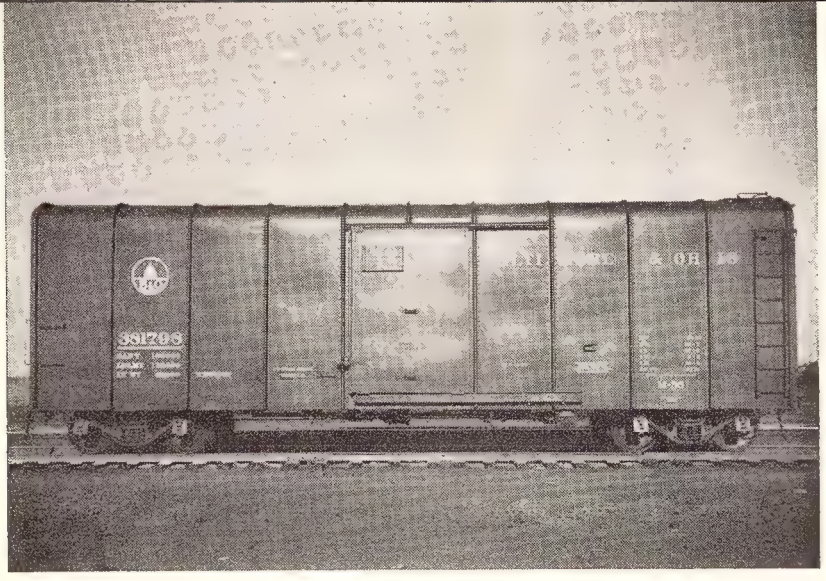
# YOUR NABOR'S PIKE





# Express Cars

**By WARREN B. CRATER**

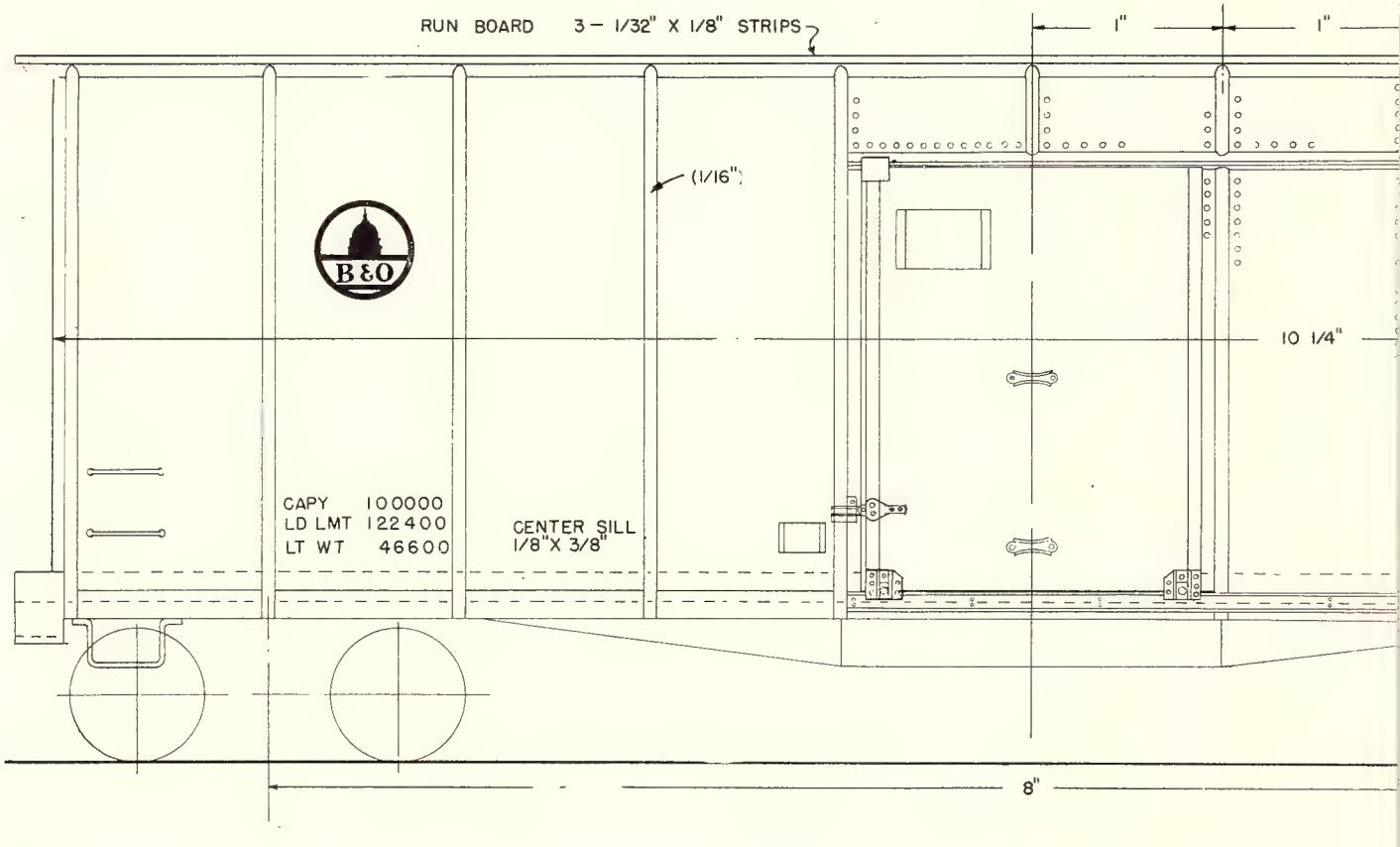
EXPRESS cars of passenger equipment design and seventy feet long are by no means on their way out. They are still used and generally as working express cars. However, in recent years there has been a very definite trend to a shorter car for storage express service. That is, for bulk shipments between transfer points. In addition to being handled in the head ends of regular passenger trains, on many roads they are handled in solid trains—some running as many as thirty or more to a train on a regular schedule. An old coach or combine is generally used as a rider. Some roads use cabooses that are passenger equipped.

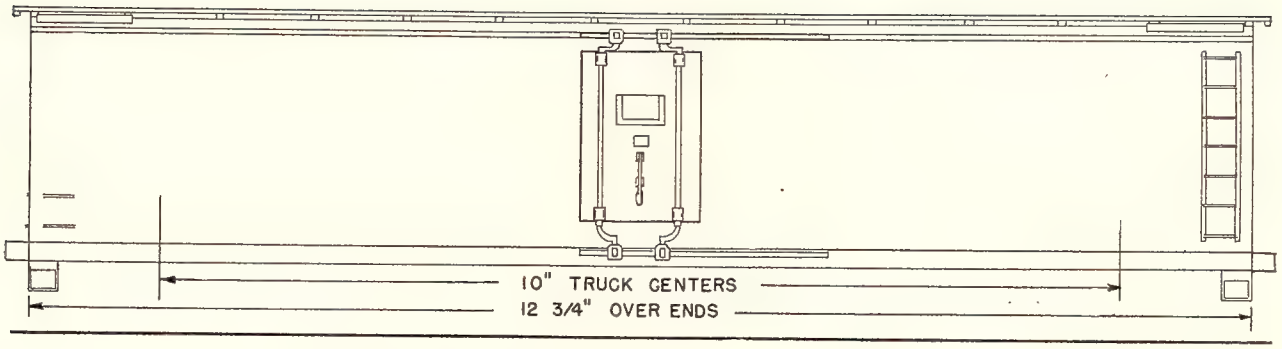
The term "passenger equipped" implies steam heat, train signal lines and steel wheels for high speed regardless of the type of truck frame. They are also wired for head end lighting on roads using this equipment.

The body design follows box car practice closely. Some are converted box cars while others are converted from the troop sleepers which in recent years became Army surplus.

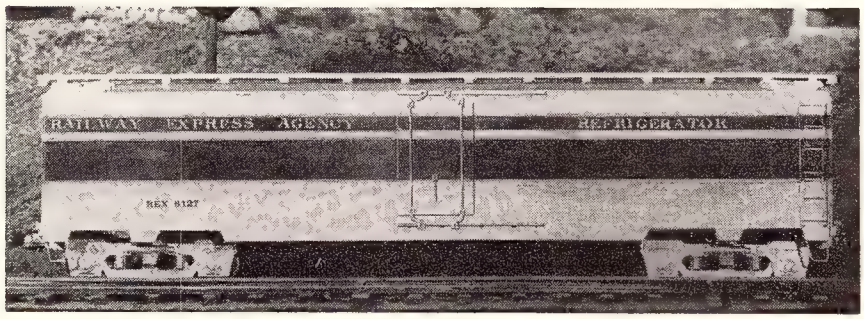
The accompanying drawing shows the overall or outside dimensions of most new express cars and reefers. Those converted from troop sleepers have the same outward dimensions. The new box express cars having 40'6" inside length have a cross section of the same dimensions as those 50' cars. There are some which are converted from the older standard steel box car, dimensions as of the well known P. R. R. x 29. Then too, there are a number of individual designs such as the B & O round roof which is an M53 box car, passenger equipped.

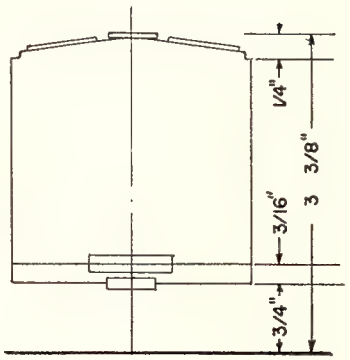
The color schemes are many and varied. Many roads use their streamline colors on these cars. Then too, the lettering, except reporting marks, will conform to practice of the owner road. Therefore, I would suggest that the individual modeler observe favorite prototypes. While the dimensions follow a definite pattern, the colors and lettering are too numerous to list here.






½ *O gauge*




Even though dimensions are not generally stenciled on the sides of these cars, it is not difficult to distinguish between the 40'6" and the 50' cars on sight.

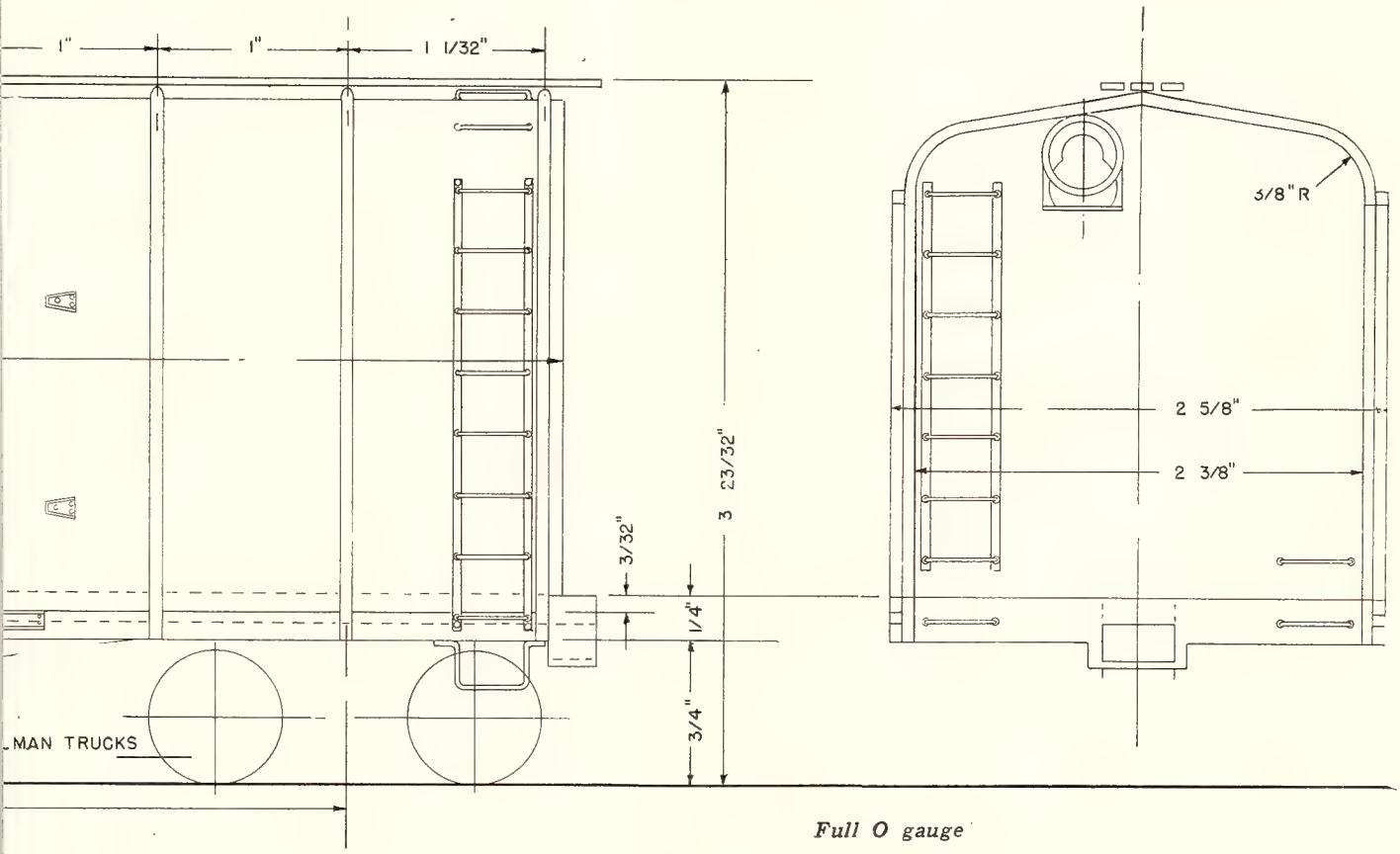
Several types of trucks are used such as the Dalman, A A R and Standard Passenger. Because of this, it is reasonable to suggest that the builder observe his favorite prototype for this detail.

There are body kits available which can be adapted for some of these cars if desired, however a completely built-from-scratch body is not difficult to build.

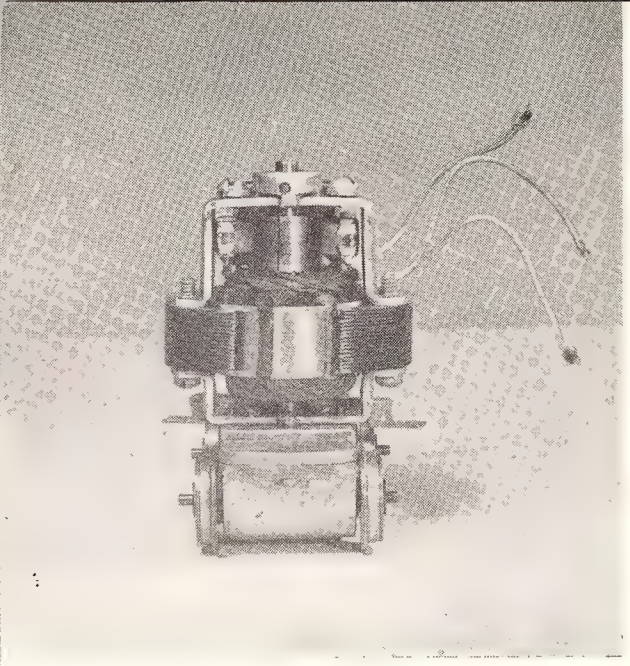
First cut the sides from plywood or pine, preferably quarter inch plywood, 2 3/16" high and 12¾"long for the high 50' car shown in the drawing. Other cars are as follows: High 40' car—2 3/16" by 10½"; Older 40' car—1⅞" by 10½". All dimensions shown refer to O gauge.

Cut floor and ends of the same ma-

(*Continued on page 48*)




*Full O gauge*



# Enclosed Motor Drive

By LONG VALLEY ELECTRIC RWY.

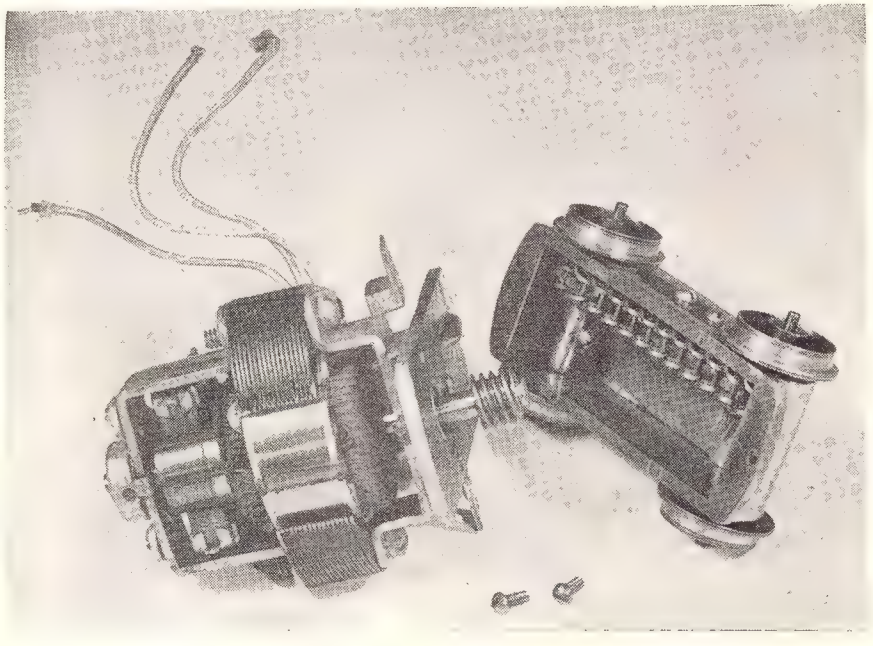
HERE is a rugged, heavy duty motor truck specifically designed for continuous operation over long periods of time with a minimum of attention. Every layout seems to have one or more work horses—you know—those locomotives or cars that run the real mileage during shows or operating nights and can be counted on to perform when the prima donnas take time out for repairs. If you plan to build a mileage hog—this is the motor drive for the purpose.

Two design features, clearly illustrated in the photographs and sketches, make the truck serviceable and long wearing. The power drive consists of the well known worm and chain arrangement entirely sealed in the gearbox. A low level of grease is carried in the box that constantly lubricates all moving parts. To this end, the chain acts somewhat as a pump, picking up grease from the bottom, carrying it over the axles and depositing a large portion on the worm, which at best is difficult to properly lubricate. The gear box is attached to the motor plate by two screws removable from the bottom. Since the motor and motor plate are supported by the bolster this means that all gearing can be quickly inspected and serviced by merely turning the car upside down and then removing the gear box. Neither the bolster, motor or car wiring need be disturbed. Oilite bushings are used for axle bearing inserts—this same material is used by K & D for motor bearings—therefore all rotating shafts are properly carried. Note that the bolster pivots on the truck at a point 3/8" behind the motor shaft center line. This location is the approximate geometrical center of the motor so therefore the truck will theoretically turn within a two inch wide car body.

The base of the truck is the gear box consisting of two side plates (Item D) assembled to a top plate (Item B) There are several ways to make this unit. The brutal method is to bend up a sheet of 3/32" thick brass or steel into the required channel form, then shape the sides and top separately and finally cut out the top portion. Another method that produces excellent results and is a time saver when quantity production is desired makes use of the arc welding process to fasten the steel side plates on a steel top plate.

The home workshop method illustrated is a screw and solder process that will produce a channel adequately strong for the service intended. Start construction with Item D—the side plates. Cut two rectangular strips 2 7/16" long, 9/16" wide from 3/32" brass stock, then sweat the pieces together so that both can be shaped in one operation. Now scribe a center line lengthwise and punchmark the four hole locations indicated on the plans. Using the axle hole punchmarks as centers, swing the quarter circle arcs. The rocker ends are then shaped by means of a saw and file. Next drill the two 1/4" diameter axle holes after which the two pieces can be separated. Two No. 44 holes, used for the screws supporting the chain guide, are drilled in one side plate only and countersunk on the outside so that the screw heads will not protrude beyond the plate surface. Since all truck parts are symmetrical, the chain may be located on either side. A somewhat ticklish operation is that of drilling two No. 50 tap holes edgewise down through the side plates, but by careful centering, it can be done successfully without breaking through the side walls. Use a small drill first and then follow up with a No. 50. The tapping indicated will be done at a later point in the assembly.

A set of spacers, shown as Items J and K, will greatly facilitate assembly of the gear box and, more important, insure accurate alignment of the axles. Each spacer unit consists of a 3/8" OD block, Item J, that fits snugly over a 1/4" OD spindle, Item K. The spindle is threaded to receive 8-32 screws. Since the length of the block corresponds exactly to the desired gearbox interior width, the blocks are used as spreaders holding the side plates apart while the longer spindles extend partly through the side plate axle holes and are locked in place by the screws with retaining washers. This arrangement is shown in the accompanying sketch. Both blocks and spindles are preferably made from steel that can be oxidized over an open flame so that they will not be receptive to solder when final assembly is made.



Item B, the top plate should be cut to length and width from 3/32" brass stock. Shape the end curvature and then drill the No. 44 mounting hole indicated at each end. Now place the side plates, locked together by the spacers, in position on the solid top plate and clamp firmly in place. Turn the assembly upside down and use the four edgewise holes in the side plates as guides to drill corresponding No. 50 holes through the top plate.

After this, turn the unit right side up, then countersink the top plate holes just drilled slightly. Tap each hole 2-56 from the top plate down into the side plates for a distance of 5/16". Now lock the parts together by threading steel flat head screws and drawing them up tight as possible. Before inserting the screws, make certain they are bright so that they will take solder well. The three pieces can now be soldered fast to make a rigid unit.

If your iron is not large enough and a torch is not handy, try placing the assembly upside down over a gas stove burner. In this manner solder can be flowed along the seams and melted down the edgewise screw holes. When the unit is cooled, withdraw the spacers, file off the screw heads and generally clean away excess solder along all the seams. Now make the cut out in the top plate as specified in Item B. This area is 2 3/16" long, centrally located and extends to the side walls in width. Note from Item B and the cutaway assembly side view that the cut out ends are chamfered back to prevent an edge on which the chain might catch.

The motor plate, Item A, can now be prepared from 3/32" brass cut 1 1/16" wide. Unless you are a whizz at layout work, it is suggested that the plate ends be left rough with extra material so that it can be slid along the gear box to obtain correct worm and gear alignment. Locate and drill the two No. 44 motor mounting holes, countersinking on the bottom side, and then drill or bore out the motor bearing hole. The 9/16" diameter specified is nominal, but since the bearing caps differ somewhat in exact size, it may be necessary to enlarge the hole slightly with a rat tailed file. Also, drill the No. 44 king pin hole at this time. The motor pad, Item C, serves to elevate the motor sufficiently to prevent the lower bearing cap from interfering with the gears or chain. Since the holes in this pad are a repetition of those in the motor plate, cut the pad from 3/32" brass to the correct outline, then solder this blank in place on the motor plate. Now use the motor plate as a guide to drill the required holes.

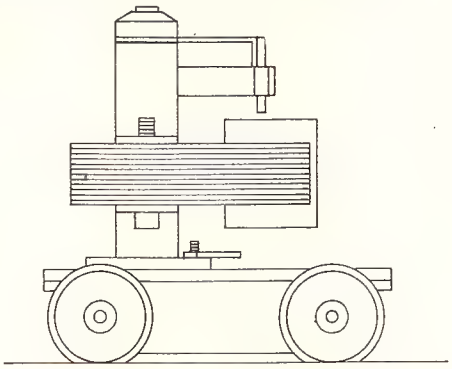
You will notice that the motor mounting holes are offset and do not match those found on the K & D motor end brackets. The span of the K & D holes is too great for the mounting surface, hence the offset arrangement using small 2-56 screws. Use the motor plate and pad assembly as a guide when drilling No. 50 tap holes in the motor end bracket.

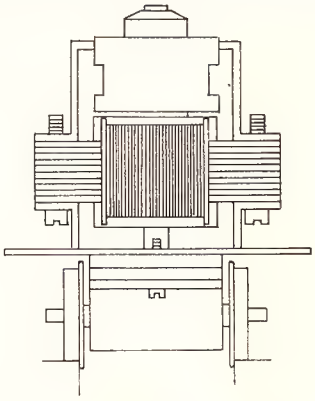
A bolster, Item E, is cut to shape from 1/16" sheet steel. Note that the king pin hole is brought forward as previously explained, but the bolster bar itself is carried out at the truck mid point for the sake of appearance. The bolster width shown is for a ten foot wide car, but can be shortened for narrow car bodies. As dimensioned, the bolster will permit wide turning radius suitable for most cars. Even greater turning ability can be provided by using a lever type bolster that is fastened lengthwise under the car body. The king pin is a 2-56 screw that passes up through the motor plate and pad, threads into the bolster where it is soldered fast. Allow some slack so that the truck can wobble on the bolster to accommodate track conditions.

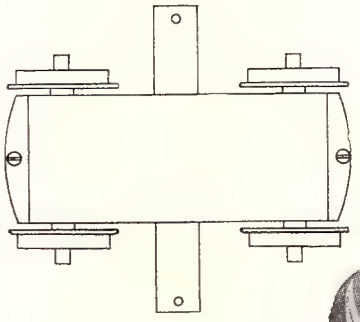
Returning to the gear box, four axle bearing inserts are to be installed. Assuming the use of 3/16" diameter steel axles, these inserts can be turned on a lathe from commercial grade Oilite or Compo bushings having 5/16" OD with 3/16" ID. Such bushings are listed in the Boston Catalog. Should smaller diameter axles be used, suitable bushings can be turned from bearing bronze stock. One method of turning the Oilite inserts with a minimum of waste is to slip a bushing on a length of 3/16" drill rod and solder it fast at one end. (Yes, Oilite solders easily in spite of its internal oil.) Then chuck the drill rod in a suitable collet and cut off inserts from the loose end. The wafer thin flanges are used to shoulder the inserts on the outside surface of the side plates and provide an anchor for the solder that holds them in place. When completed, insert the bearings, solder the flanges in place and then file the inside end of the inserts level with the inner surface of the side plates.

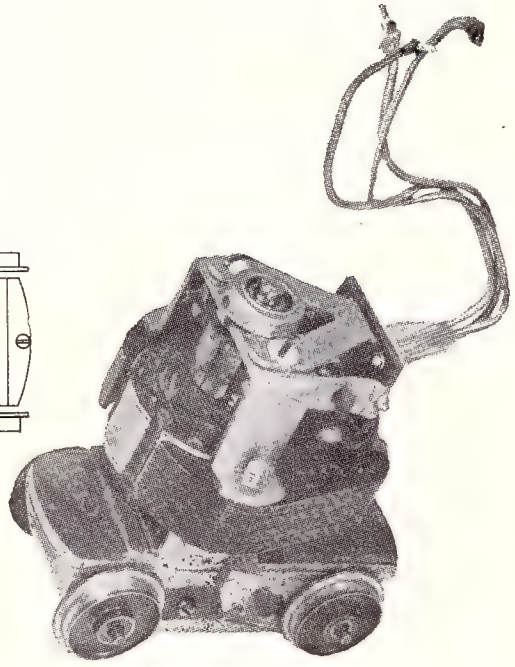
Two axle quills are required to support the gears and sprockets. Each quill is cut from 1/4" diameter drill rod, bored 3/16" for a slip fit on the axles and shouldered at both ends to provide a length, nominally 7/8", that will permit insertion between the side plates but with no appreciable side play. This is a cut and try proposition and the power axle quill particularly should be a nice fit to insure accurate gear alignment. The purpose of the axle quills is two fold. Since the quill shoulders ride against the Oilite bearings, a steel and bronze thrust bearing combination is obtained to absorb the side thrust resulting from the worm action. Also the quills hold all drive components so that the axles can be withdrawn at any time without disturbing the original gear alignment.

All gears, chain and sprockets used are available from the Boston Gear Works so they will be identified by catalog numbers. Select two seven tooth steel sprockets (Ca 7) and bore them 1/4" for a press fit on the quills. Cut away

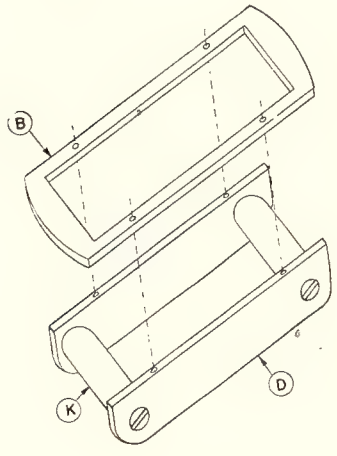


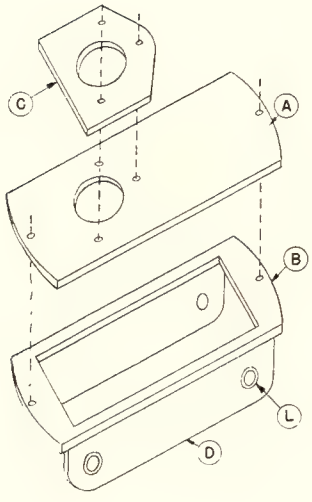






the hubs then force the sprockets on the quills where they can be locked in place with solder. Note from Items H and I that the centerlines of the sprockets are located 5/32" in from the quill shoulders. Item I shows a set screw hole. Drill and tap this hole through one wall. In addition to the sprocket, the power axle quill (Item H) carries the worm gear. For a ten to one gear ratio, this gear would be catalog No. D1118, 20 tooth, 48 pitch, bronze worm gear. Bore out the hub 1/4" for a slide fit on the quill and then drill and tap the set screw hole in the hub through one wall only.




This is the point at which the gear alignment can be established. To this end, install the motor on the motor plate and pad assembly. then slip the worm on the motor shaft. This worm is 48 pitch, double thread, Catalog DSH. Bore out 1/4" for slide fit on the motor shaft and cut off to 1/4" length as shown on the sketches. Now using a length of drill rod as a dummy axle, install the power axle quill within the gear box, then place the gear box on the motor plate. Slide the box along the plate until the worm and gear mesh properly, noting that the gear can be moved crosswise along its quill to facilitate the line-up. Make sure that the edges of the gear box are even with the plate edges and clamp the two assemblies together. Now lock the gear to its quill with a set screw, following which the worm can be soldered fast to the motor shaft. Using the mounting holes in the gear box top plate as a guide, spot and drill No. 50 holes in the ends of the motor plate that can be tapped 2-56. A pair of screws will now lock the two sections together so that the clamps can be removed. The motor plate ends were left rough so they can now be filed to conform with the top plate outline.

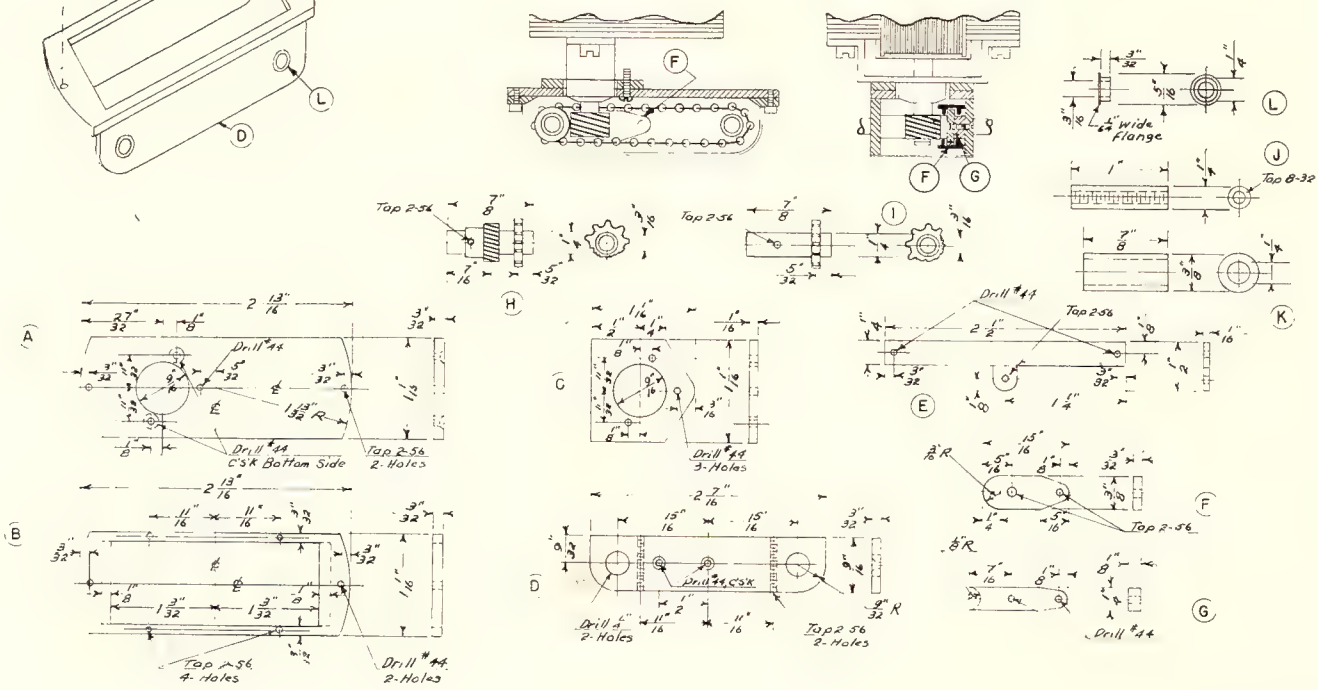
The necessity for the chain guide unit, consisting of Items F and G, can be seen in the side and end cross sectional views. The Boston ladder chain, Catalog 1A (high-tensile) is too wide for passage between the worm and side plate therefore the worm is cut down to a length of 1/4" so that the chain will overhang. Any appreciable slack in the chain will cause it to drop when leaving the sprocket and jam between the worm and side plate. The guide, therefore, takes the chain right from the power axle sprocket and conducts it past the worm at a safe height.

Item G, the inner guide, goes against the side plate with the concave cutout next to the quill with only running clearance provided. Some filing will be necessary to make this fit. The outer guide, Item F, having the tapped holes, is positioned against the inner guide, both pieces being held in place with 2-56 flat head screws. Actually, both pieces can be soldered together and handled as a unit. The large rounded end of the outer guide should be directly in line with the sprocket teeth and as close as possible to them without touching. In operation, one line of chain loops runs along the inner guide while the outer guide is in the center path between the loops. The inner guide supports the chain while the sprocket teeth disengage, then the outer guide is effective.

The length of ladder chain required is entirely dependent on the truck wheelbase selected. A length of 1 7/8" is shown in the drawings and works out satisfactorily. Many commercial side frames are available in this length. A wide range of wheelbase lengths can be used, the minimum step being plus or minus one chain link. There is an annoying degree of variation in chain from time to time, so the odds are against obtaining a perfect loop for one particular wheelbase. Drape the chain around the sprockets and gauge the point of closure that will be one link less than the length apparently correct. Then form the loop taking care that the closing link works as freely as the others and is not deformed in shape. Now place the loop over two bolts or rods, clamp one rod securely in a vise and pull on the other to stretch the chain. Do this by trial and inspection until the chain loop will pass freely over the sprockets but without noticeable slack.

With the chain question settled, final work on the gear box can be done. Remove both quills preparatory to installing the axles. On the power quill, the worm gear was held in place with a set screw. Solder this hub fast to the quill and drill No. 50 through the set screw

(*Continued on page 45*)



# THE GD LINE BUILDS AN OLD TIME ENGINE HOUSE

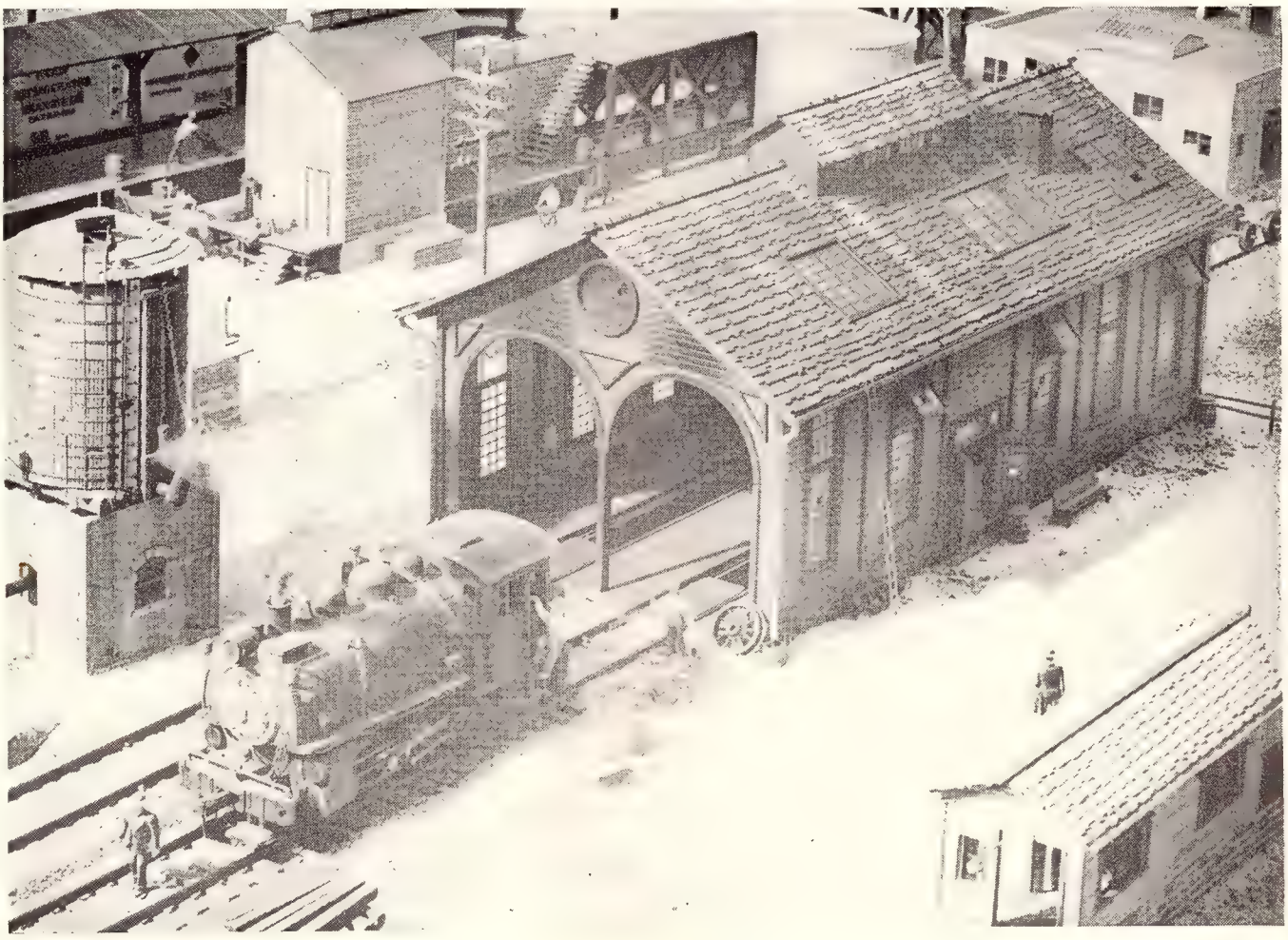
By JOHN ALLEN

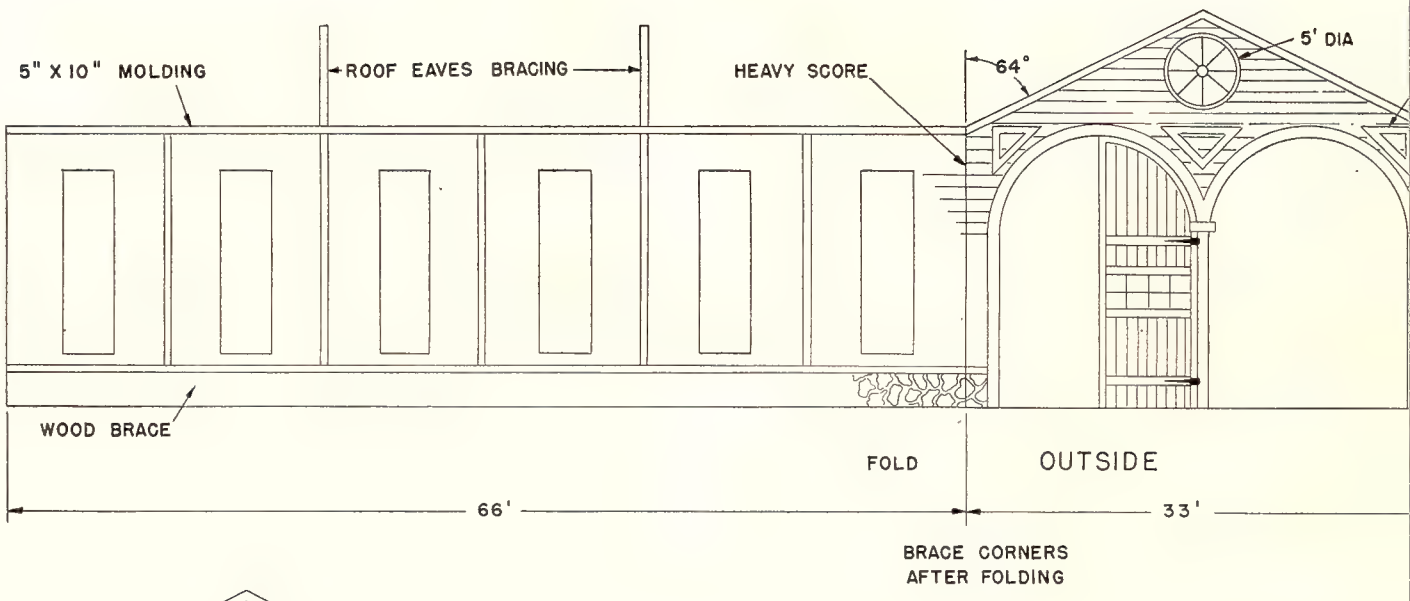
WHEN the HO gauge Gorre & Daphetid R. R. needed an engine house to service equipment, I checked over all possible old photos and plans. I am indebted for much information from Mr. R. G. Kann, maker of those O gauge structures put out by the Model Structures Co. For this model, I was more interested in reasons and methods of early construction rather than to make an exact copy—the same as a farmer builds a barn to fit his own needs, a railroad builds a shop to suit its own equipment. As the GD Railroad was an old fashioned branchline with short engines, their engine house became just about as small as a two-staller could be.

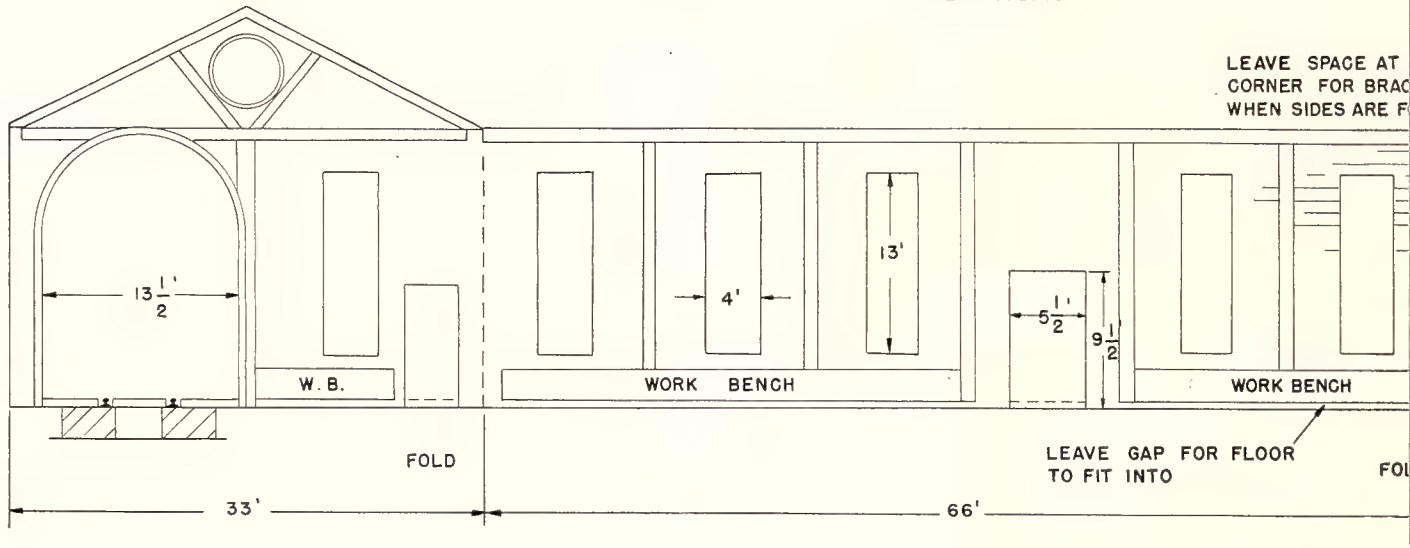
Should you decide your railroad needs a shop of this type, change dimensions and plans to fit your own locos and other requirements. The large windows and numerous sky lights give the workmen plenty of light and of course makes it possible for the boss—that's you—to keep his eye on them. An engine house of this era would almost certainly be aged and dirty. The instructions shown here and those that will follow in the November and December issues will put your building in such a "rustic" condition. Since the construction photos and drawings often explain details far better than a written description, some of the minor details are not dealt with in the text. Study the illustrations carefully before starting construction.

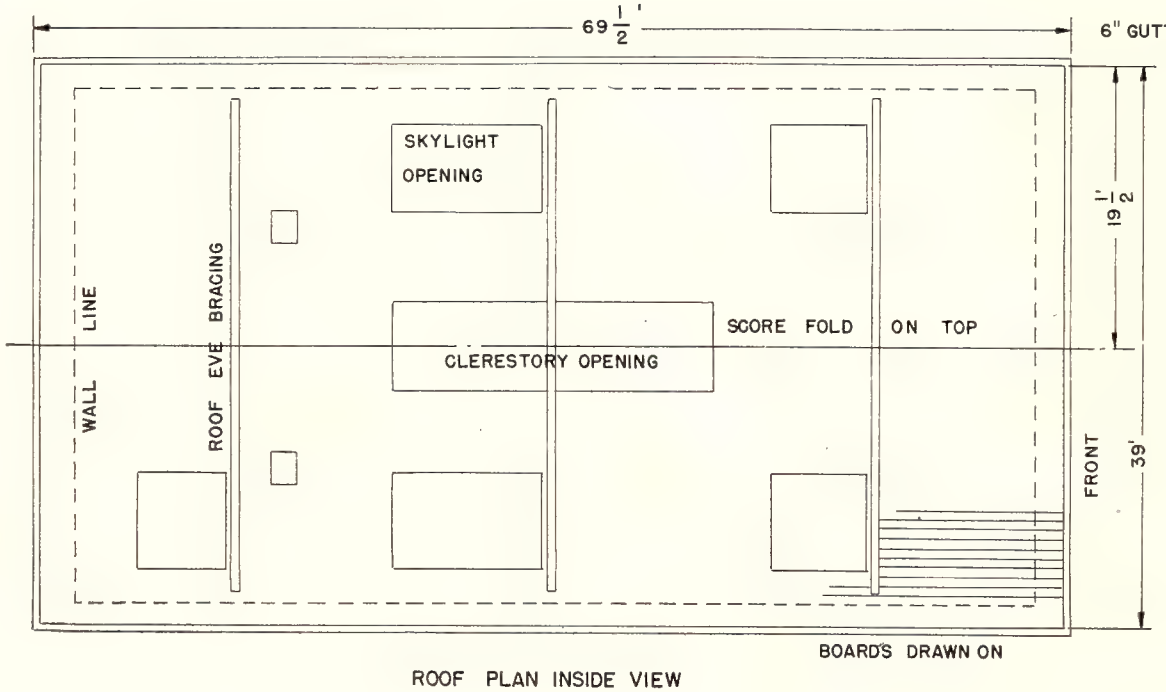
Undoubtedly you will have many or all the materials needed for this project. Here is an estimate of the cost of supplies in HO—triple it for O gauge: 3 feet HO rail and spikes—10 cents; strip wood and channel—22 cents; two bulbs and sockets —32 cents; glue and cement—5 cents; paint and ink—8 cents; bristol board—20 cents; construction paper—1 cent; celluloid from old film and scrap wood for pit—no cost—a total expenditure of 98 cents.

Beginning with the plan, draw up your four sides on a piece of good grade, heavy bristol board. Don't economize here—get it at an artist supply store. If you are building in the smaller gauges, you can get all four sides along one edge of one sheet of bristol board.

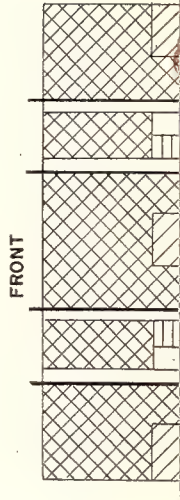




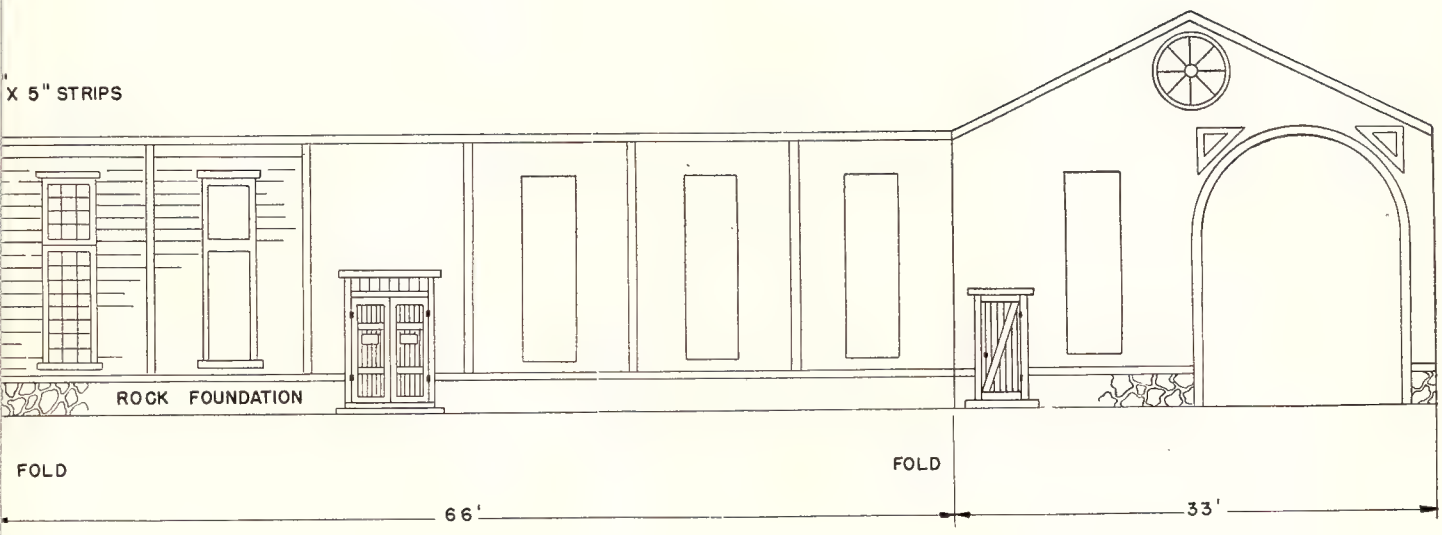



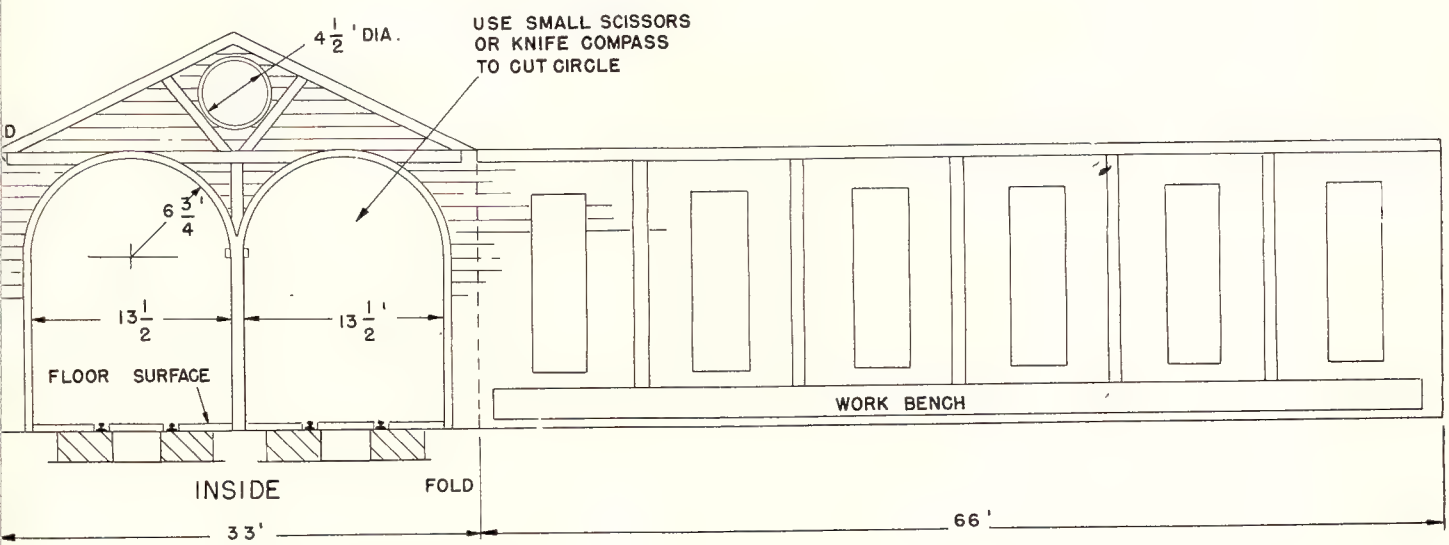




ROOF PLAN INSIDE VIEW



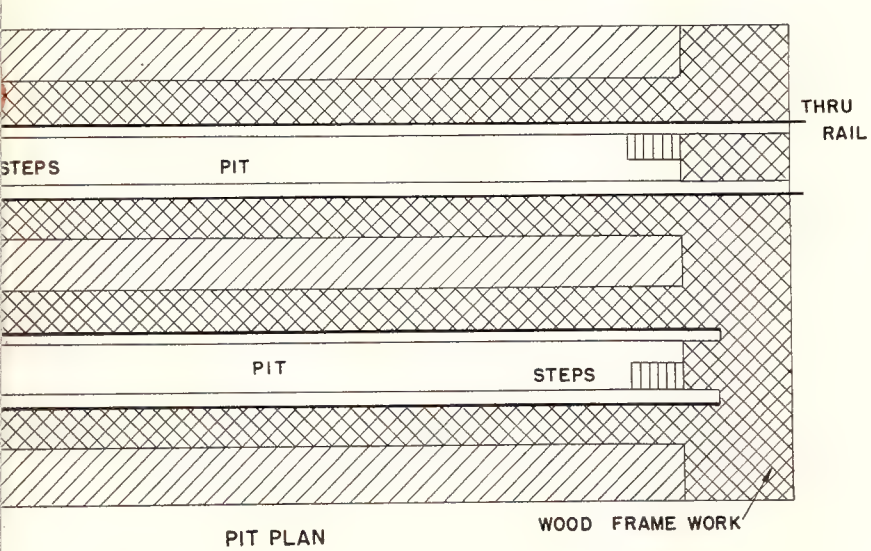
X 5" STRIPS



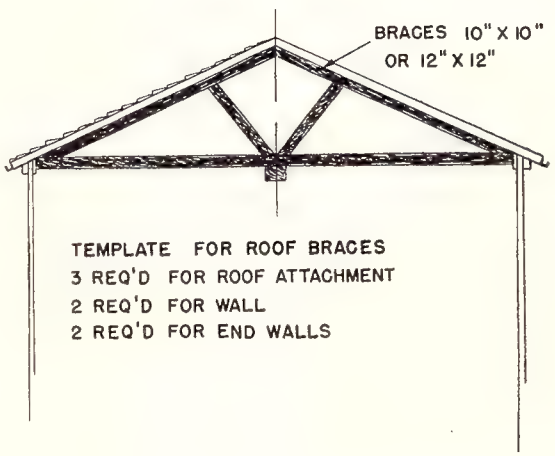




BE SURE CORNER FOLD SCORING
IS SQUARE & ACCURATE
CORNER SCORE ON OUTSIDE ONLY

ALL DIMENSIONS SHOWN ARE PROTOTYPE




PIT PLAN



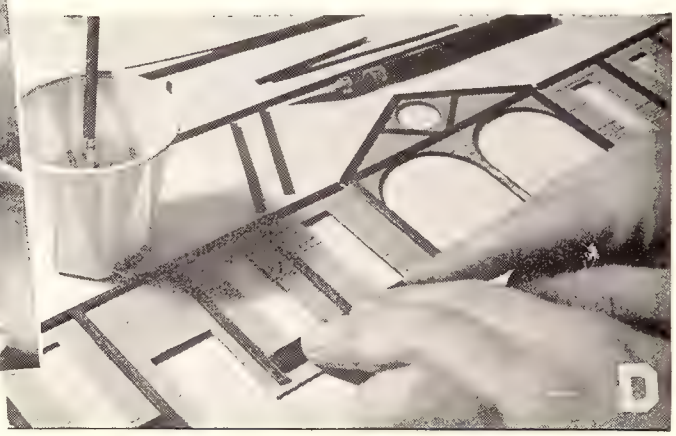

TEMPLATE FOR ROOF BRACES
3 REQ'D FOR ROOF ATTACHMENT
2 REQ'D FOR WALL
2 REQ'D FOR END WALLS

**A** Using an icepick, score the card in long horizontal lines the entire length, even through the windows. These scores should be from 6 to 12 scale inches apart depending on the size of the boards you desire for siding. Turn over and score the card on "inside." This will keep the card from warping as well as giving interior detail. The engine doorways can first be cut out, scribed vertically, sliced in two and stained the same as building sides. These cutouts can be used as doors with suitable frame bracing.

**B** Now comes the painting. Use flat oil paint or stain of the desired color, the scribed sides should be rubbed with the paint on a cloth and stroked along the scribe lines. Let it streak for it will give the boards a more individual appearance. Do the same for other side using color desired for interior. This is to be a staining rather than a painting job. The paint will pile up in the score marks and rub lighter on the card surface giving form and relief. This is the reason for scoring *before* painting. If scored afterwards, it will barely be seen.

**C** Next cut out door and window openings with a sharp knife. I prefer and used the Xacto blade #11. Cut against a piece of metal and put a sheet of glass or hard cardboard underneath to stop blade. This will give a clean, sharp edge to the cut.

**D** The wall bracing and work bench is stripwood—balsa is OK—but I prefer the sugar pine strips obtainable from Bessey of Delhi, Calif. Stain the strips by rubbing with color on a piece of rag before cutting to length. You will need various sizes to correspond to the different sizes of bracing (see plans). Cut bracing to length after it is dry and glue into place, both inside and out. I prefer Weldwood glue since it is extremely strong, easy to mix and not too quick to dry. Take care not to allow the glue to spread out the sides of the bracing as it would make a sloppy job. Be sure to allow clearance with horizontal bracing at corners where building is to fold. Leave off vertical corner bracing until *after* corners are folded to form building. This bracing is needed both for appearance and to keep walls from warping.



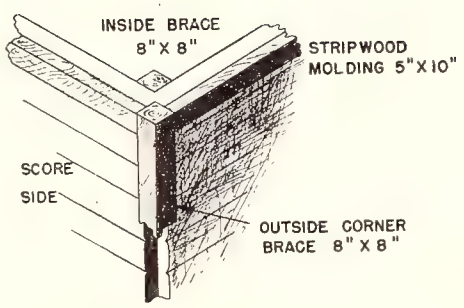
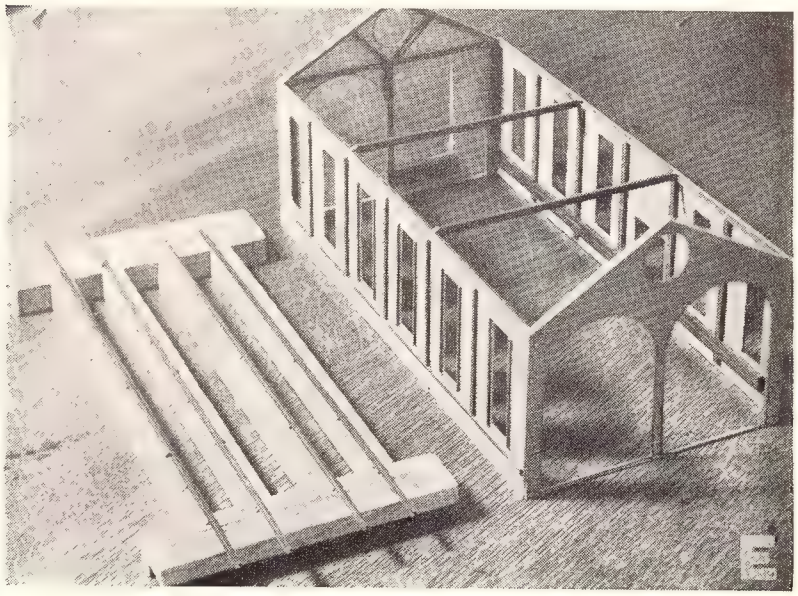
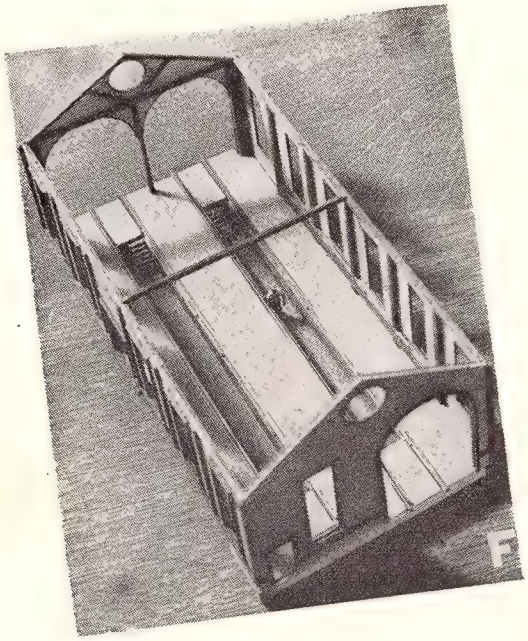



FIG. 1

**FIG. 1** Score halfway through at corners on the *outside* side. Bend to form four sides and making certain it is square, glue corner bracing inside and out. Allow to dry. Pins along bottom of sides as well as a couple of temporary braces at top will aid in keeping the structure square while drying.

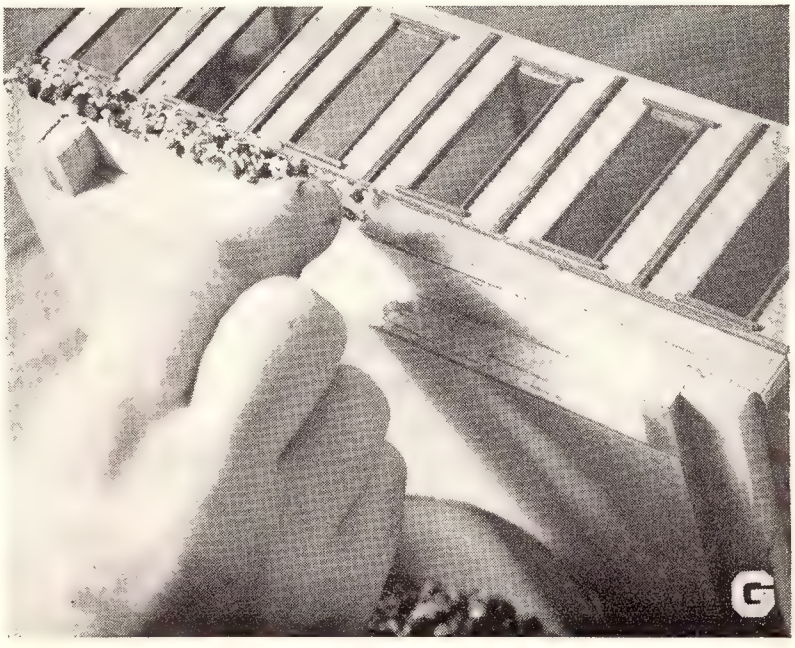
**E** The floor and pit structure are made of wood strips which have a thickness of the pit depth—three to four scale feet. See plan of pit area. The rail is spiked in place at this time.




**F** The floor is brick paper glued to cardboard or gray cardboard if concrete is desired. The card surface should be just below top of rail and flush up against the outside of rail. A groove must be left on the inside for wheel flanges to ride in. Of course there will be no brick or concrete on the inside of rails at pit. Glue pit and floor into the wall sides. Put steps at each end of pits.

**G** The rock foundation is made by painting Weldwood or other waterproof glue between the long horizontal wood brace under windows to the ground-line and dropping small stones or gravel on the glue while still wet. Do one side at a time and allow to dry face-up before starting the next side. Do stonework inside where the workbench doesn't cover. While each side is drying you can work on the roof.



# Dealer's Diary

By E. A. KIICK

OUR town is a restful California community, full of summer vacationers. Local merchants see a person often enough to learn his name, then when vacations are over—the visitor heads for home. During these flurries, the universal interest in hobbies most invariably draws all eyes into a hobby store window. Nine out of ten will eventually wander in. It's like a strong tonic, finding such prospects for casual activity during those lazy hours in the sun.

Take you for instance! We'll assume you're a model rail. Maybe you're just an arm-chair fan now but one who will soon be in operation. Suppose you were to come to our mountain resort on your precious two week vacation. This might be inconvenient or improbable—should you live in another part of the country—but let's just suppose.

When you take a trip away from home, you don't expect to be in contact with your particular hobby in strange territory, do you? Our specific breed of modelers isn't that wide-spread. You might be surprised, and well pleased, to find an operating scale model road along the way. But had you ever imagined what a delightful thrill it would be to find a hobby shop most partial to model railroading—right at the summer resort of your choice?

Lend an ear now to the results in operating just such a shop. By results we mean the experiences found—day to day—in the good questions by "furriners" concerning the small bits of paraphenalia which make up the modeling of trains in true scale. We shall bring out the simpler questions that so many experienced model rails take for granted. It will be a field day for those newfledged railroaders who hesitate to ask questions which they feel might sound corny.

Our best of all hobbies can never gain momentum without taking the mere learner into hand, showing him just how simple in construction yet how exciting and full of endless discoveries model railroading can afford. The neophyte will profit by it—and the experienced rail will again experience some of his most trying moments—a real shot in the arm to make a lagging railroader see that his troubles are not as bad as they seem.

Let the old-timer take heed then in the realization that our new brothers are crying for basic information.

For instance, just last week. A wide-awake young fellow, about fourteen years young, wandered into the shop. We were doing some remodeling and had not planned to open. The door was standing ajar. The boy walked in—and right over to the display of built-up HO kits, really giving them the old one-two in study. I had dropped my immediate work (nearly on the wife's toe) and turned to see if I could help him. He broke into a broad smile, then went back into a close scrutiny of the cars in the display. The most gratifying thought, at the time, came when he made no attempt to touch the models. Here we had the making of a courteous rail. Human curiosity, not only in children, seems to demand that we *handle* something new to us—the more to understand it. Few beginners realize, however, the fear in the heart of any "brass hat" when someone handles his equipment—which usually ends in breaking a wheel chain loose or cracking a carefully-laid decal, possibly even something worse!

This boy asked the inevitable first question. How do they run? He had never seen toy trains with only two rails. Tinplate toy trains, with the three-rail system, have been around for a good many years—and easily four or five generations of children grew up playing with them. It would be interesting to know what percentage of them, starting with tinplate, have now switched over to the more realistic two-rail scale model pikes.

We answered the boy's question with the simple story of negative and positive—how the two rails work identically to the wiring in his own home—the current being picked up from one "hot" rail, feeding juice to the motor in the locomotive and returning down the rail number two.

Of course, all newcomers to the game should be told that the most common practice is to use 12 volt direct current. This has to be converted, with a transformer, from the alternating current of the socket in the wall at home. Or, it can be obtained by using the direct current from a battery—preferably the wet-cell type found in automobiles.

The average person, especially a young teen-ager, doesn't necessarily know the difference between direct current and alternating—so why bother them with these mystical terms now. They can pick up this information, more slowly, during those days of building the first couple of box cars. Even then, they need not know what makes their brass and boxwood empire tick—the main thing is for them to start off with the right kind of equipment. There will be lots of time in the early stages of his fun to work out problems such as these. When he gets to the point of actually drawing up plans for a layout—then is the time he first needs this knowledge.

Right here should be mentioned one little policy put in motion at our hobby shop. There are several of the larger model railroad manufacturers who distribute small books to be sold for around ten and fifteen cents. Our policy is to hand these over, free of charge, to those who seem genuinely interested in the hobby. Personally, we have found that it has helped sell the hobby more than any amount of talking on our part. The Chinese proverb "a picture is worth a thousand words" works more than one way. Not only the pictures, but the reading matter. We all can talk until we're blue in the face—the more we talk the less a fellow is going to absorb. With something new penetrating the brain, the mind will absorb just so much—then any detailed explanation will be just plain words. With something down in black and white (and a few illustrative colors) to take home—a really interested new railroader has something to digest when his mind is at ease. During each new reading—it might be of one particular part in which he is most interested—something small will come to light. These booklets are so well written that they make a newcomer feel less embarrassed about asking questions—especially when he can begin to use some of the lingo and *know* what it means.

To get back to our young fellow, he wanted to know how big a space it would take to fix up an outfit like this. Naturally, it depends on what he intends to include in his layout. A simple circle, in HO gauge, will fit—and work well—on a table five foot square. From our own experiences, one should begin with no less a space than five by eight feet. Many variations in loops, yards, stations and scenic effects are possible within this so small an area—strictly speaking of HO gauge and smaller.

When questioned concerning the price of a complete outfit—we again had to deflect to generalities. This is not like buying a complete train—already built.

One way or another, we usually start model railroading by building one thing at a time—accumulating as we go and learning as we build. From at least two or three different books on the subject, a beginner should decide—as nearly as possible—just what he eventually wants to have. One of the first things he should do is make **a list of cars,** freight and passenger, which interest him the most. Write down what buildings he wants to be sure to include. What does he plan to show? Countryside? Just a town and its rail service? Don't forget a good switching yard, some particular part of the country with its mining operations, a seaport, ranching or livestock yards and maybe a mountain division of track (touchy business, this last, when it comes to figuring "grade"—or amount of incline for track). The choice of rolling stock and buildings depends entirely on what the new railroad executive plans to copy from real life. Some modelers prefer to stick to one definite period and have all their buildings and rolling stock equally rustic or modern. Don't forget work cars, a switch engine plus the possibilities of a wrecking crane.

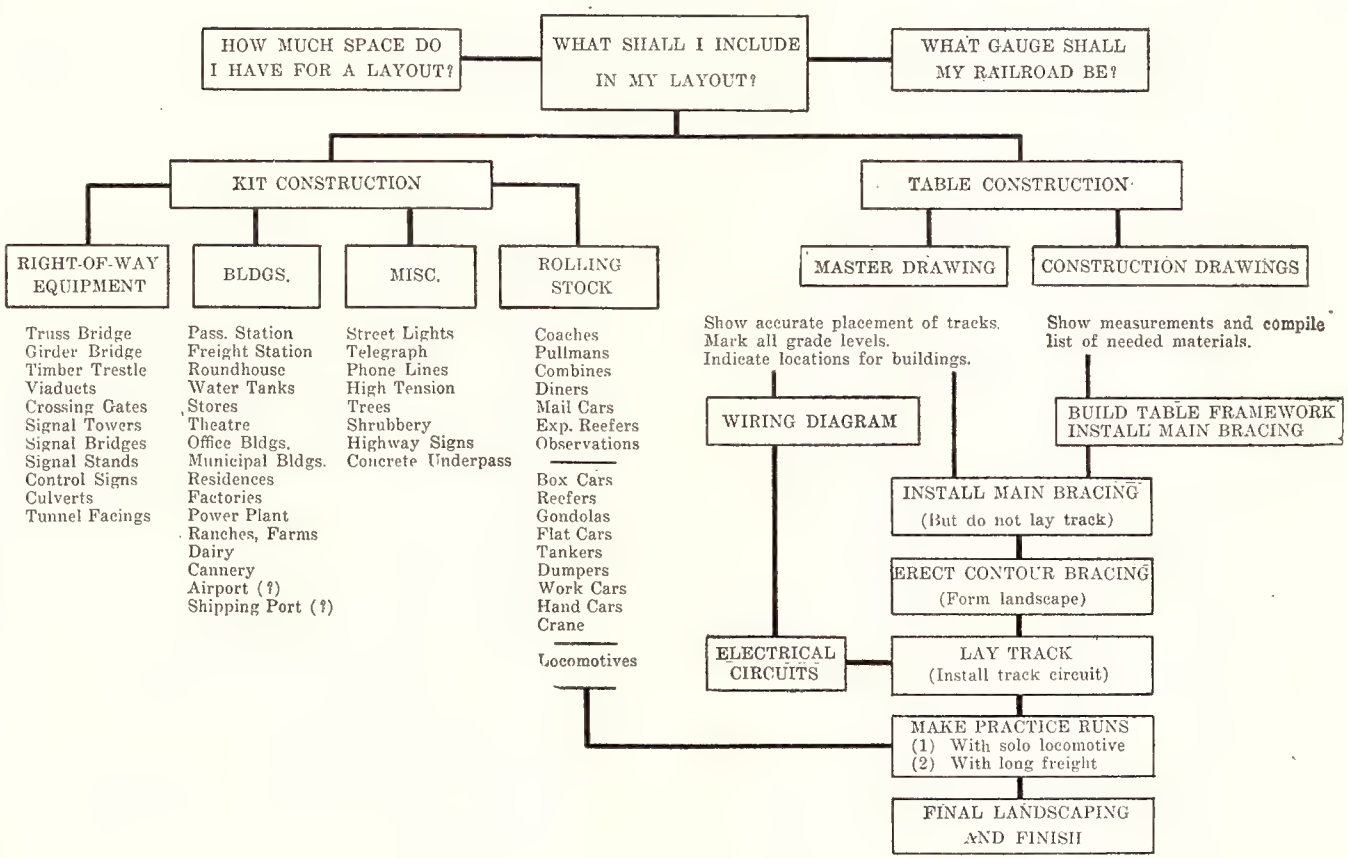
In the course of planning a layout, after reading all the available printed matter on the subject, a new railroader will probably change his ideas many, many times. Upon first study, he may decide quite definitely upon a certain goal. Then, as many new vistas are opened up to him from reading about other railroaders' pikes, there may be a spankin' new idea. Every layout should be started with this in mind. Be certain to build rigid enough, but not so permanent as to hinder breaking down a small section to be replaced by that new bit of detail. If there is room enough, we recommend every rail should experience the fun of a roundhouse and its turntable. On that stretch too, don't forget the fine detail of water pipe, sand house and ash dump for your motive power. These added facilities follow prototype practice and will add untold realism to your pike.

New equipment is on the march. Constantly there comes a flow of new kits to make those miniature worlds more complete. The best way to receive this new supply is to get under way, plan that layout and start. If one is to hold off, waiting for the crucial moment, it may never come. The sensible idea is to plan a good system, include all the latest fine stock, build your empire flexible enough to receive any choice up-to-the-minute kinks, then set the cars to rolling. It may be that you'll have to relay some of your track. Sometimes your motive power isn't able to take as steep a grade as you thought.

Only when you've gotten your first long freight rolling will you know what it means to have a world of your own. Then, and only then, can you realize the full meaning of fun in model railroading.

# PLAN FOR BEGINNERS

Fine print under Kit Construction may be used as a handy reference check list.




Here is an almost perfect guide for the fellows getting their start in model railroading. In fact, it is even a handy reference for the expert. As the author explains on these pages, make sure you plan your layout. As with the prototype roads, there should be a reason for every piece of equipment on your model pike.

# Model Railroading—

# Made Easy!

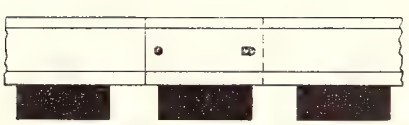
By JIMMY LANG

## PART I

HAVING trouble with your model railroad—actually its a fairly easy proposition. Let's get to work. First of all the gauge—that's your initial problem. But actually it's no problem at all! It's a case of whichever gauge suits your space, your taste and your pocketbook—after all, each of the gauges is model railroading from HH to Standard, it is your choice. Where is the best location, cellar, attic, spare room or garage? Again it is your choice.

My layout happens to be in the cellar due to the large space and the cool in Summer, warm in Winter idea. Also, oil heat! I happen to prefer "S" gauge and have an "S" gauge layout. Our tastes are different, so I never partake in the "Battle of the Gauges." I prefer coffee to tea and you prefer X gauge to Y gauge, it is as simple as that!

Trackwork is the most essential of all the modeling work you will perform. Take time to make it right. It must be level. This can be done in several ways. Cord stretched from point to point and leveled is a good method. Some prefer to measure down from the overhead (ceiling to landlubbers!). Still another method is to level the roadbed as you go along. The latter method takes a fine level, however, and care must be taken in proper use of the level. Roadbed may be board, roofing material on board or standard hobby shop products. Ties may be hand made, but are not too expensive at the hobby shop and are preferred. Rails are always gauged but watch out for those curves! Keep them at gauge or wider—never narrower on curves.




Laying a curve is not as hard as it may seem. Join two rail ends (method described later) and have one end anchored firmly in the Supers clutch, while you, the Engineer and Brass Hat, take the other end of these two rails joined into one length and form your curve. Mark the curve thus formed and release the rail easily. Now put down the ties by spiking, glueing or just plain settin' in place. Repeat the rail bending process,

FIG. I

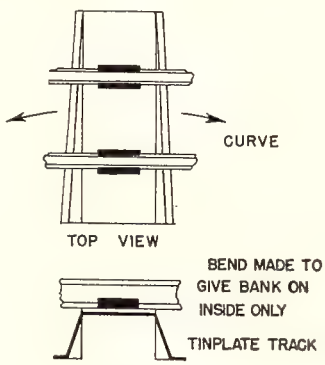
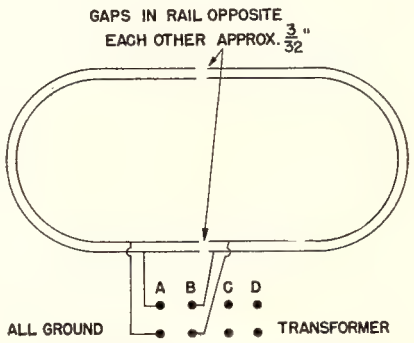



FIG. II

only this time start spiking, one rail only. Be sure when bending to leave a few inches of straight on each end to prevent springing from straight section previously laid. Ties should be sanded on the bottom—OK, have the joke—how do I know which is the bottom? When I start sanding, that's the bottom! I cut some first, then sand smooth to give the tie about one-third the thickness on one end and the full thickness on the other or outer end. Of course the ties leading up to the curve are just sanded slightly and then more as you approach from each end to make a gradual bank.

Joining the rail for a complete curve is not too hard if one thing is kept in mind. You must either join the rail as I state, or bend each end to the proper curve, as it will tend to spring out to form a small angle where the rail meets. This method I will describe has proven more than satisfactory with me. File the side of the rails to be joined half way through, and back about one-half inch from the end. Be certain to file the right side so that it will match and form a simple lap joint. Solder the rails together and you now have one continuous rail six feet long (three foot sections used). Drill a hole at each end of the lap so a spike may be pushed through and bent over to strengthen the soldered joint. There is a simple drawing shown in Figure 1 to clarify.




WIRING FOR DUAL OR MORE CONTROLS FOLLOW SAME PROCEEDURE

Always keep a scrap of rail around to make fishplates on. Fishplates are the little pieces of tin or brass that are formed around the bottom and clamp over the base of the rail to keep them level at the joints. They may be purchased, but I prefer to make my own from tin can material. Do not depend on this to conduct juice but solder a short length of strand wire across the rail joints. I find two rail operations more realistic. The only special care needed is at turnouts or switches. When a fishplate happens to be at the spot where it rests on a tie, just shave a little off the tie to match the thickness of the fishplate to keep the rail level. Do not solder any joints together, except the curve joint mentioned. As in the prototype roads, rails contract and expand with the

(*Continued on page 48*)

# Freelancing... THE CORRECT WAY

By BILL HOFFMAN, JR.

FREELANCING in model building is one way that the builder can express what he thinks a car should look like. In model railroading, more than in any other hobby, the freelancer must be aware of the limiting factors that govern all prototypes. To build a car "as you go," without at least a preliminary idea of what the finished product will look like, is at best a poor business. Only too often the free lance car stands out like a fat man in a slim crowd—it will be either too high, long, wide, low or not conforming to general railroad practice in some other way.

Then again, some modelers can build a car that is correct in proportion but still would have no utility as a full grown car on a railroad because it was not planned out to do a job as all real prototype railroads are. In a sense, all designing engineers are "free lancers"—they are drawing up new cars that are different from any running at the time. The way these engineers work is to take all the things that must go into a given car and try to build the car around it. This would be a primary design such as Pullman might make to follow a railroad's specifications for a car that was to do a certain job. Many times a car is altered however and it then becomes the job of the engineer to get a number of items in the available space as best he can. This is usually not the case with a model builder.

The other day I decided to build some interurban "eighty-ton anchors" as official cars are sometimes called. It also occurred to me that it might be of some interest to know just how one model builder proceeded to sketch out his design.

First, I must decide what mode of construction I wanted to follow. Steel? Wood? New? Old? Since most of my pet cars are Sacramento Northern, none of them were very similar and most of them were of wooden construction, I decided to build a car of the 1908-1912 vintage. Well, the easiest way to get information is to look in a car builder's encyclopedia or at prototypes of that period. Note in particular the type of windows and how they are arranged. Note also the transoms in the roof and how all the detail in general stacks up.

Secondly, what kind of equipment will the freelance car run with? How long are they? What type of operation did the road use—steam line practice or jerk water trolley? The SN was nearly a steam practice Railroad and cars were rather heavy and ornate. After a look at several photos, I decided to use the arched windows of the old Niles cars and make the car steam-road width—10' 0".

After arriving at a style, the problem of getting a good workable window arrangement together arises. Windows are placed in a car to serve a purpose. Further, they are located to suit the interior of the car so at least an idea of the interior should be in mind before laying out the sides.

As to specifications, the car must have the following: Sleeping quarters for officials and family; sleeping quarters for servants; cooking and eating facilities and a lounge section; sanitary facilities and heating must be available. Since it is decided to make the car an MU trailer using SN practice, pilots must be installed on each end.

With all this in mind, the floor plan is laid out. Lounge section to the rear is separated from the dining and conference room by a swinging door. Kitchen is next to the dining room with the bed rooms in the center of the car for the smoothest riding qualities. Each room will have its own sanitary facilities but they are placed at opposite ends of the two rooms so the flushing of a toilet in one bed room won't awake the man asleep in the other. Also the bed room next to the kitchen would be hot all the time if the range was going—so the toilet and shower will tend to act as an insulator. Location of the toilet and shower is inmaterial as to which is outboard. I choose the shower. Now all three of these compartments are on the left hand side of the car so the passage is on the right. As space in the center of the car is valuable, the storage of food and dry goods is toward the head end of the passage. Next comes a pullman section of berths for the servants. A section will hold four but as there is only a mess boy and cook, only one side is made up at night. The other can be used in cases of emergency or if some of the General Manager's Superintendents decide to stay for poker there is a place to put them up. A wash room and toilet for servants and linen locker bring up the other end.

Since the SN is owned by a larger steam railroad and the car may be hauled on the steam line, we install a small steam boiler for heat as the car doesn't carry steam connections on the ends. Electric heaters can be used while on the trolley system. As for lights while off the electrified system, a generator and battery box can be installed on the bottom. Standard heavy interurban ends and buffer plates bring up the platforms. This laying out may seem cumbersome—but it really is quick to do.

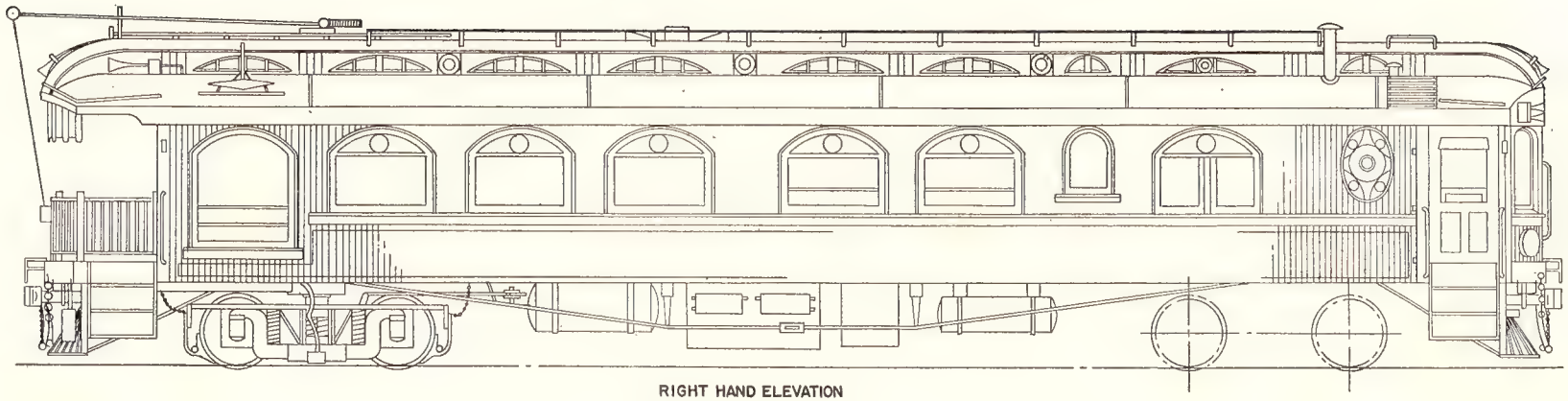
Now the sides are ready to be laid out. I saw a picture of an official car that was built in Cleveland having one very low-set arched window next to the end. This I believe would go good on each side of our lounge section. Next, the dining and conference room being quite long will take at least two 4' 6" windows on the right side and since Johnathan Vanceport Lowe is a thirsty individual and is known as a good entertainer, a small bar is installed in the after left corner. Now it would do Johnathan no good to have dry patrons of the road see the mess boy mix drinks right in front of the window while they stood out on the platform, so to save him this embarassment, a wide solid panel is built thus cutting down the size of the window next to it.

In the kitchen small high screened windows are the usual thing as a look at any diner will show. Johnathan can't take his showers in absolute darkness so a small high arched stained glass window is provided. Light for the toilets is from an off shoot from the transoms in the roof. The bedrooms get a large window each and the pantry a small high arched job. The servants quarters having Pullman berths get a double set of windows as in a sleeper and the wash room and locker get ovals. No need for light in the boiler room.

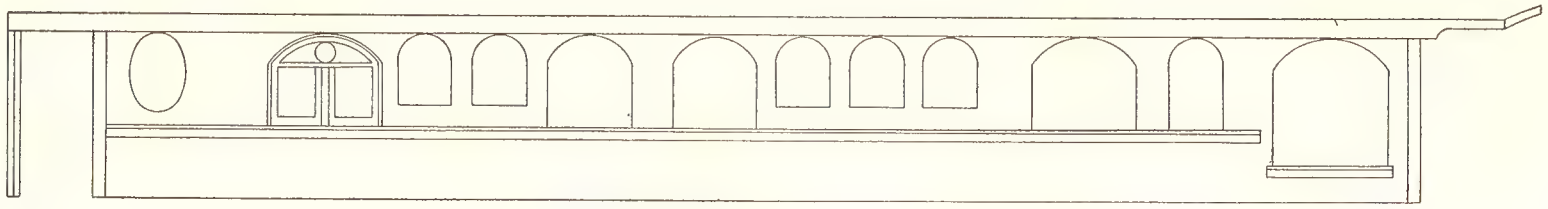
Some general hints in laying out windows are: if the compartment runs from side to side, the windows are equally spaced and the same on each side. If the compartment has a passage on one side, the windows on the sides are independently spaced and are not necessarily the same type. Exceptions come where in the case of the bar, the window is cut down.

On the right hand side of the car, the varying importance of the different types of windows can be shown. The primary reason for a window is to admit light and permit passengers to look out. From this standpoint, theoretically the larger the window the better. The large window in the lounge section is very unusual but nevertheless practical and it has been done in real practice. Don't forget the hand bars on the inside to prevent a passenger from getting thrown through the windows by a sudden lurch.

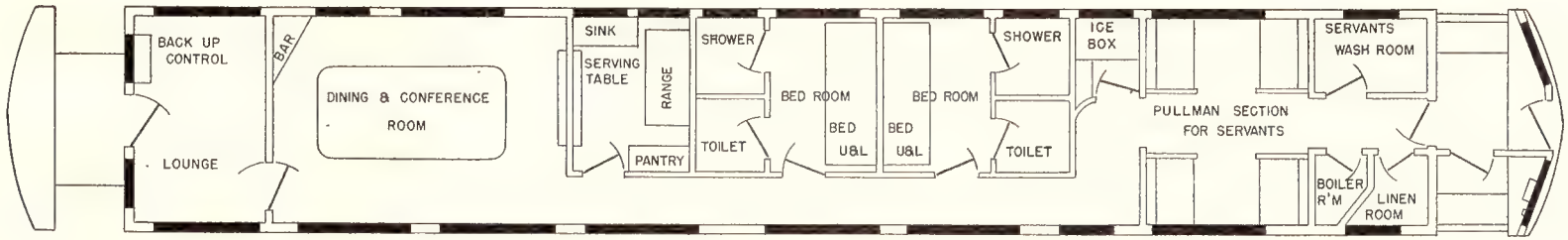
Next most important is the smaller full height window next to the bar. It would have been the same as all the others except there just wasn't room. Next came the small raised screened windows in the kitchen. Their purpose is to admit light and ventilation to the hot kitchen. They are raised to allow more wall space used here by the sink back board. It is a general practice on diners and official cars to raise the kitchen sash. The oval windows with opaque stained green glass are only for admittance of a limited amount of light and so

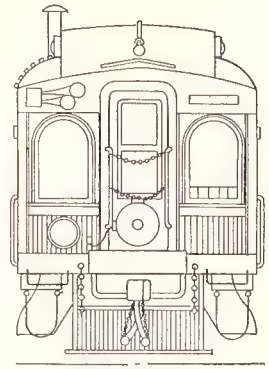


RIGHT HAND ELEVATION

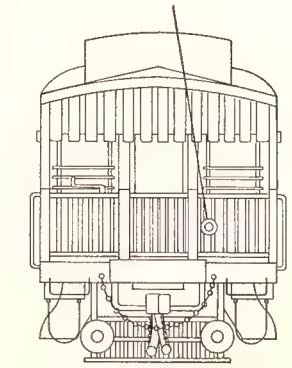


LEFT HAND ELEVATION



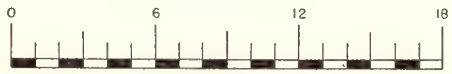
FRONT END



REAR END

| SPECIFICATIONS | |
|---|---|
| LENGTH O.A. | 67' 0" |
| HEIGHTH | 13' 9" |
| WIDTH O.A. | 10' 2" |
| TRUCK CENTERS | 41' 6" |
| W.B. | 7' 0" |
| MIN. RADIUS | 96' 0" |
| TRUCKS | BALDWIN |
| TYPE OF CAR | M.U.TR'L'R |

SCALE FEET




FREE LANCE INTERURBAN BUSINESS CAR

side passage is to admit light to the turn of the passage and should be clear glass.

It can be seen that not only is it necessary to get the windows located correctly but also to use the right kind of windows for the job.

The roof is simple to lay out if it is remembered that in the original construction of a car, the builder nearly always locates transoms over the windows on the sides and usually they are the same width. It tends to make better structure in having a solid section from roof top to floor if possible. However, transoms on irregularly laid out cars such as this are not opposite each other unless the windows below are. There are a few exceptions to this but I'd say it is 95% true. Today, however, many cars are seen to have varying window-transom setups in club, observation and diner-lounge cars. Chances are the car was rebuilt and the windows were changed around. Rarely, if ever, do the railroads change the transoms to match. It just doesn't make that much difference.

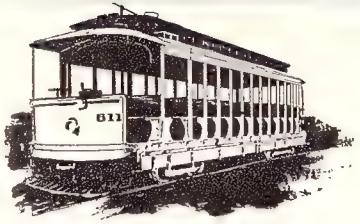
Since it is my intention to build this car as it would be today, I've added globe ventilators so the upper transoms don't have to be opened for ventilation. On the right side a small vent is installed at the front end in the locker to ventilate the linen, etc. On the left side, vents are located over the showers to let out the steam and one globe each is installed for the two bed rooms. In addition, the two bed room windows are raised and sliding screens are installed for added ventilation. A small hatch is located over the ice box to allow loading of ice up to the roof from outside. This would prevent tracking water into the car.

Above the kitchen, wind scoops are installed with the one up in the direction of travel. As this car is made to go observation platform first, *a la* SN practice, hence two scoops. Put a chimney on the range too.

As for the bottom of the car, several boxes and tanks are in order. Since Johnathan likes his morning shower, a large water tank is necessary. This water also flushes the toilets and is used for dish washing, etc. Another tank might be used for drinking water. A battery box to be used with the generator is necessary when on the electrified. The usual air tanks and brake cylinders should also be installed along with a steam trap for the steam heating system. Also don't forget a small fuel oil and separate water tanks to take care of the boiler. These boxes and tanks should be located as close as possible to the units they serve.

The car ends have pilots, buffer plates, gongs and everything necessary for I. U. operation. One trolley pole is installed to provide light at night when on a siding and also possibly for heat, range juice and for Johnathan's hot water for the shower.

In all of this I have tried to design a car to fit a purpose as a real car designer would and also build the car to suit this purpose. For fine details such as hand rails, grab irons, etc., I use



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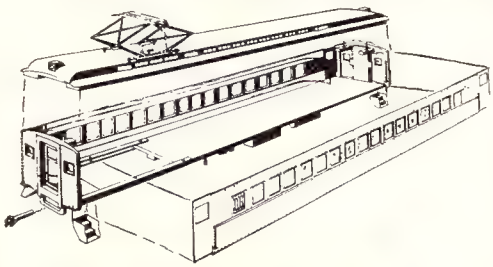

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| Road Name | Roof | KIT NUMBER Bag. | Comb. | Coach |
|---|---|---|---|---|
| Pennsylvania | Mont. | .... | 5526 | 5525 |
| Ill. Central | Mont. | .... | .... | 5525 |
| Lackawanna | Mont. | .... | 5526 | 5525 |
| NYC | Mont. | .... | 5526 | 5525 |
| Long Island | Arch. | .... | .... | 5527 |
| New Haven | Arch. | .... | .... | 5527 |
| CSS&SB | Arch. | .... | 5528 | 5529 |
| North Shore | Arch. | 5532 | 5531 | 5530 |
| Milw. Elect. | Mont. | .... | .... | 5533 |
| Pacific Elect. | Arch. | .... | .... | 5534 |

Paint, trolleys extra — No pantagraphs.

Power car $18.50; Trailer ..... $4.95

Body kit ..... 3.85

U296 Trolley pole, kit, each ..... .30

**O INTERURBANS**

| Road Name | KIT NUMBER Comb. | Coach | Miscellaneous |
|---|---|---|---|
| Pennsylvania | 3626-B | 3626-C | |
| Ill. Central | 3676-B | 3676-C | |
| Lackawanna | 3676(A)-B | 3676(A)-C | |
| NYC | 3676(B)-B | 3676(B)-C | |
| Long Island | 3629-B | 3629-C | |
| New Haven | 3679-B | 3679-C | |
| CSS&SB | 3658-B | 3658-C | |
| North Shore | 3581-B | 3581-C | Bag 3581-A |
| Milw. Elect. | ..... | 3657-C | Parlor 3657-P |
| Pacific Elect. | 3621-B | 3621-C | |
| Reading Co. | 3629-B | 3629-C | |

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## MULTI-UNIT

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It helps cause that naked look so many freelance models have. Modelers building from plans usually put in these details but in freelancing they forget them as they are not prominent enough in the builder's mind. Several good articles on ARA standards have been published and a look at them is rewarding.

Among the superficial detail, a pair of track inspection lights are placed low and over each rail on the observation platform so the officials can inspect the track at night while batting along. As Johnathan likes to "take the wheel" once in a while, the head end has controls and can be fitted with a head light, train indicators, etc. As a personal opinion, the greatest mistake in freelancing is building the cars too narrow—both narrower than the prototype and in some cases just as narrow. The gauge is really quite a compromise with actual "Q" gauge or a scale 4' 8½" so a similar compromise with the width of a car won't be out of line. I don't recall ever having seen the journals on a prototype line up wider than the sides on a passenger car but I have seen many models that give the impression that they would fall between the rails if not supported by the trucks. To overcome this, I try to build 1 7/64" scale so the equipment will have a massive look to it. As far as really looking "Big" about the rails, you can't beat the old SP-IER 10' 10½" width. They really overhang!

more & Annapolis cars using the heavy three window front. It matches the sides and gives a pleasing effect.

Redesigning cars can be a lot of fun and if the limitations in railroading are adhered to, the free-lance car won't lose that "Railroady" look.

## World Hobby Show

THE Railroad Roundhouse area of the Philadelphia World Hobby Show (to be held in Convention Hall, November 15 to 20) will feature model railroads in operation from a small sized track on a phonograph record to the huge Baltimore & Ohio O gauge railroads. Leading model railroad manufacturers will sponsor exhibits showing the various phases of railroading.

A most unusual exhibition in the Roundhouse will be the Model Railroad Workshop. Model Railroaders from Pennsylvania will work at benches here putting kits together including locos, freight and passenger cars in all gauges. Each bench will have a placard describing the type of equipment being constructed, the name of the person constructing the rolling stock, the time it took to build it and the name of the manufacturer who supplied the kit. Each kit will be standard, taken right from the manufacturers' kit is completed, it will be exhibited in a space provided for this purpose. Before the end of the show, all equipment will be judged and returned to the individual builders to keep. A cup and medals will be awarded to builders of first, second and third place winners in the locomotive, freight train car and passenger train car classes.

Amateur model rails of Pennsylvania are eligible to participate. Everything will be supplied to the entries such as kits and paints to finish the stock; however, each participant must provide his own tools. Applications may be obtained by dropping a card to: Leonard Fox, c/o Model & Hobby Industry, 16th and Conlyn Sts., Philadelphia 41.

## Good Prototype Practice

IS THERE a model railway owner who has not experienced that awful moment when some vital part ceases to function just when he has a crowd of admiring (?) visitors around? I have never made up my mind whether it is worse when the visitors are also enthusiasts or when they are mere "visitors" in the general sense. The first either sympathize with understanding of a fellow's trials or give way to unseemly mirth, especially if one has been indiscreet enough to have *put across a line* before showing them the outfit. The second type are generally confirmed in their original estimate of


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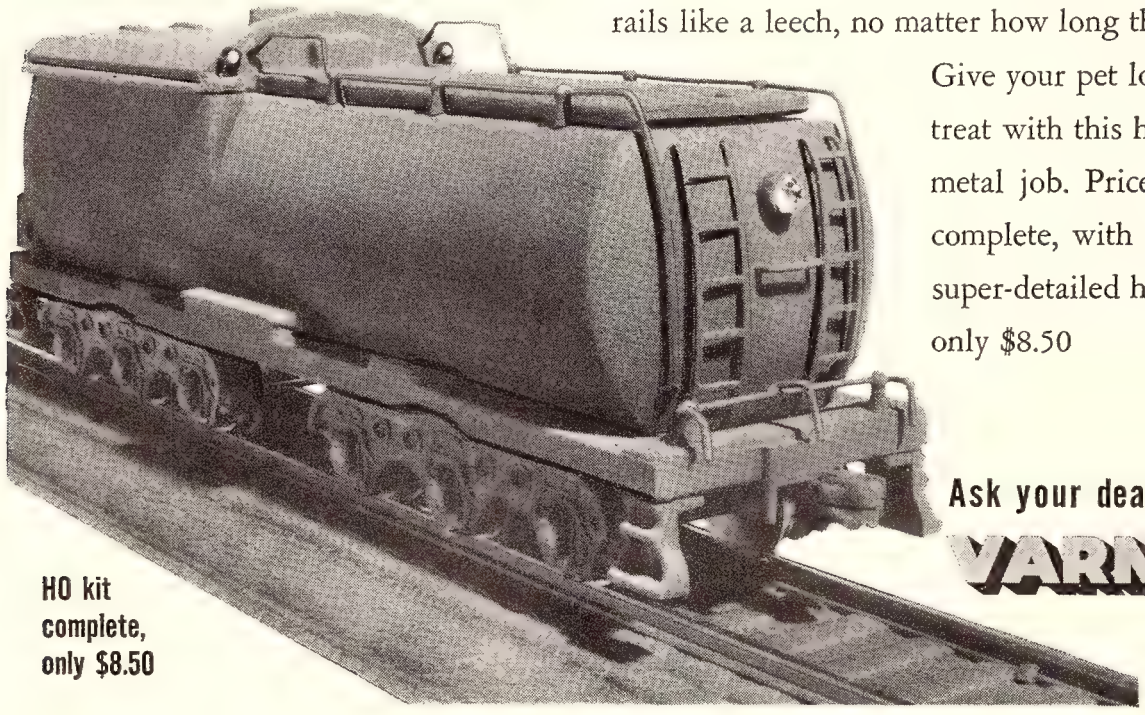

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pose and ask for a repeat performance. This last is most exasperating. I might even say extremely exasperating!

However, bow not the greying head in shame, crawl out from under the baseboard and take it in your stride. A regular traveler on our famous multiple-units, I have often noticed the guard having a *spot of bother* with the automatic doors. One night last week was memorable since the performance was outstanding. The guard pressed buttons madly in all directions but without effect and finally called the driver to his assistance. After sundry delvings into the mysteries, they resumed their respective places in the train and the station master rang the bell again but nothing happened. Repeat performance by all three principals with further assistance from two porters, one male and one female. They now gave up the struggle and decided to go with the doors open and without benefit of the station master's act on the bell. As soon as the train started to move, the doors shut of their own accord. Seldom has an unfortunate model railroader had such an appreciative audience as were in that train.

A few nights later I had occasion to travel into town via the New Zealand Railway and the train was held up on a passing loop. The night was dark and stormy and the light stayed obstinately red. The guard climbed out into the murk and telephoned the Control Room. What did he find? No, not a wreck on the line but a wretch in the signal box who had forgotten to push a button. *Happy Daze.* In the words of the sweet young thing, borrowed from another railway episode, "My dear, the language of that guard and engine driver. I never even knew there were such words." So—take heart you model railroaders and when these little slips occur, just stick out your chest and say—"It's prototype practice." . . . The Headlight, Journal of the Model Railway Club of Wellington, N. Z.

## New Films Available

A NEW 16 mm colored sound film entitled "Grinding and Use of Basic Lathe Tool Cutter Bits" is now available from the South Bend Lathe Works. This is the third film of a series based on the book "How to Run a Lathe." The film shows the various steps necessary to properly grind and use cutter bits for lathe operations such as threading, facing, turning, forming, etc. The films are distributed on a free loan basis and are also available for outright purchase.

The film was professionally produced in full color under the direction of expert machinists to provide an accurate and effective educational medium. Other films in this series are: "The Lathe" which shows what the Lathe is, its use and how the various parts work; and "Plain Turning" which shows each operation required to machine a straight cylindrical shaft between centers. All films in the series are 16 mm full color with sound track and are approximately 800 feet in length.


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| 7025 | F-3 "B" Unit, powered (1 motor) | 67.50 |
| 7036 | E-7 "A" Unit, powered (2 motors) | 90.00 |
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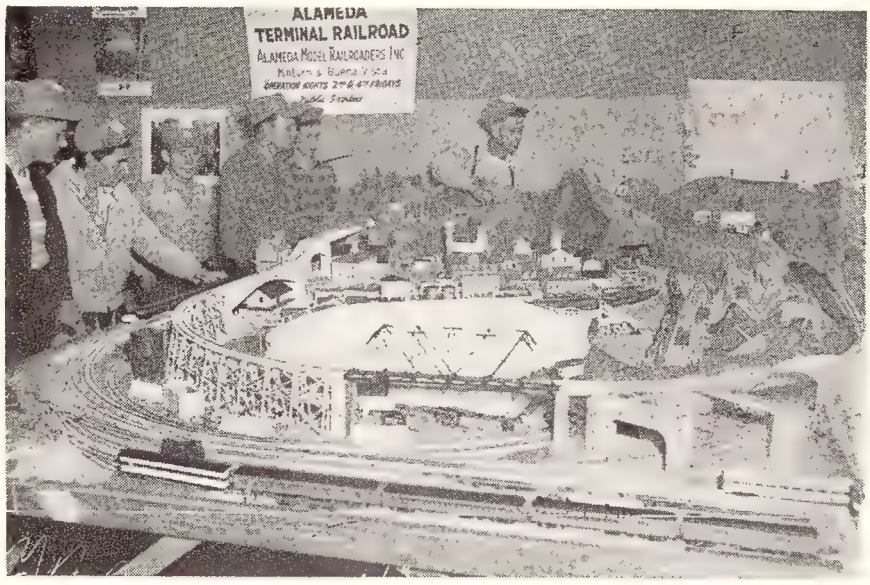
# RAILROAD CLUB NEWS

PATERSON, N. J. The Model Engineers Railroad Club of North Jersey, Inc., is well known to local model rails who remember its origination over ten years ago. After a period of inactivity during the war, this club is back on the job constructing an outside third rail O gauge layout. Experience in building two previous pikes is guiding members to what they hope will be perfection in realistic operation. At present about half of an intended one thousand feet of track has been laid. The layout is fundamentally an out and back type and covers an area 35 by 60 feet with a four foot aisle all around. In order to make operation as real as possible, each of four engineers will control a train over its entire run. The control system provides that only one engineer may power a block at one time, the other three automatically being deprived of power for that block. Thus, the first engineer to energize a block has undisputed control of it until he turns it off. Direct current will be used for instantaneous reversing and smooth operation.

Visitors are cordially invited to attend meetings any Tuesday evening at 35 Fair St., Paterson. A few new members will be accepted to fill the club quota of 25. Those interested may contact Vic Robatino, 317 W. Clinton St., Haledon, N. J.

ALAMEDA, CALIF. The Branch Line, a portable operating HO layout of the Alameda Terminal Railroad, was operated continuously during a nine day County Fair held recently in Pleasanton, Calif. Engineers Allen Blair and Cecil Kenney, on vacation from their daily professional jobs, operated the equipment during the day and other club members journeyed to the site every evening to relieve them of their duties. An innovation as far as County Fairs are concerned, the display attracted large crowds of interested spectators many of whom became acquainted with the full aspects of the model railroad hobby for the first time. As a result of this exhibit, Fair Officials have expressed the desire that competitive exhibition for all Alameda County Railroad Clubs be arranged for the 1949 Fair. The Alameda Club is indebted to the Pleasanton railroaders who were invaluable assistants in all procedures connected with the Fair.

The Branch Line first achieved laurels at the Alameda Junior Chamber of Commerce two day hobby show held in May of this year. It walked off with the Grand Prize award and individual members also received personal awards for equipment shown on the basis of workmanship and detail. For Fair purposes, an additional yard section four foot square was added to the orig-




*The Alameda Terminal Railroad, a portable HO gauge pike.*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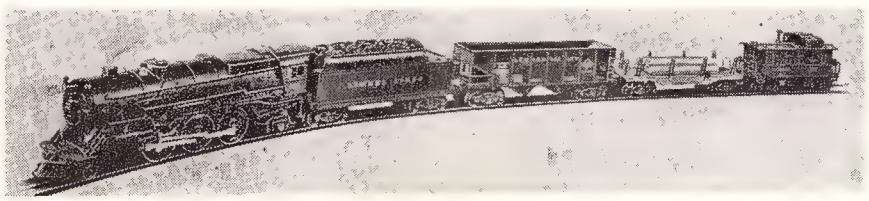

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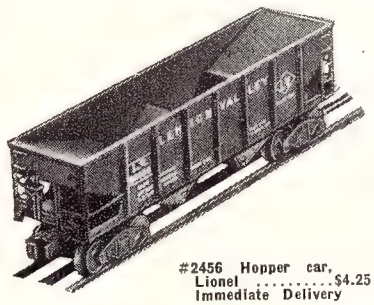

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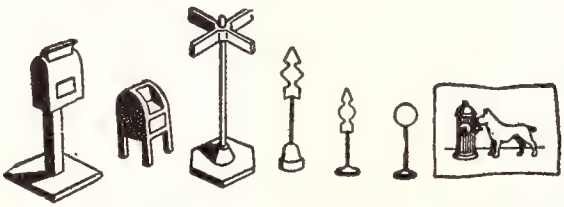

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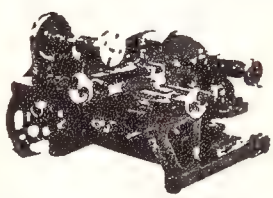

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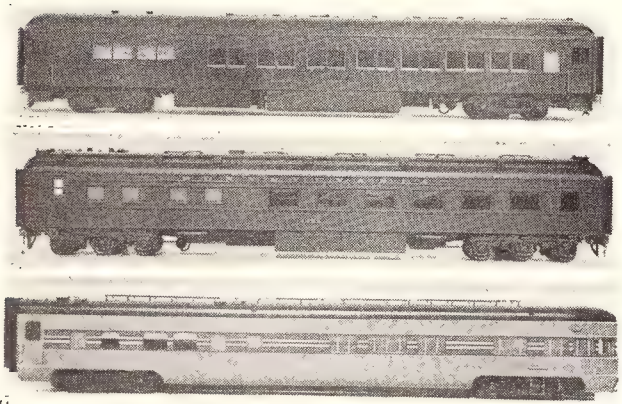

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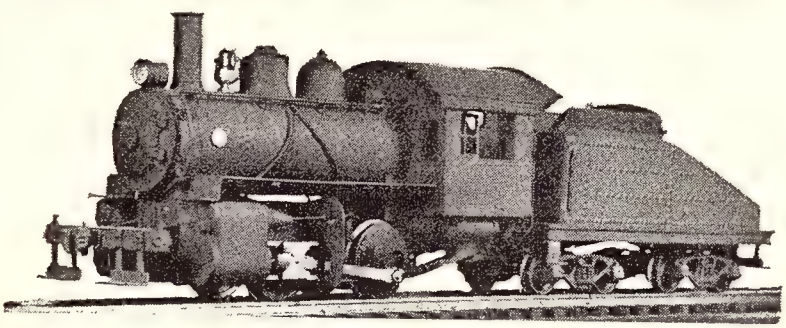

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inal eight by twelve foot layout. A cross over and outside reverse loop were added to the trackage as well. Mechanized switches made it possible for one man operation of three engines at once. Passenger, freight and engine service track are included in the yards. Scenic detail included mountains, a valley town and a circus in the process of being constructed on the outskirts of the town. The circus itself is complete as to animals, wagons, circus train, tents, side shows and performers. A steel truss bridge and a trestle are of specific interest.

With shortages of building materials such as iron, lumber and concrete recently alleviated, the Alameda Club has temporarily discontinued operations of the Branch Line and are concentrating their energies to the final construction details of their stationary pike at club headquarters. Members hope to achieve full scale construction of the Alameda Terminal Railroad this month in time for their public open house celebration of the club's anniversary. Ultimate plans include five scale miles of track, 70 switches, 6 control cabs, a trolley system and a hydro-electric power system.

NEW YORK, N. Y. The New York Society of Model Engineers announce that the Hotel Pennsylvania has been selected as headquarters for the Spring 1949 Convention of the Northeast Region of the N.M.R.A. to be held on the weekend of April 30-May 1. This hotel is opposite the Pennsy station so any ladies attending the convention will find shopping very convenient. A business meeting will be held on Sunday morning followed by a banquet. Provision has been made for the display of models right in the hotel. Anyone having suggestions for this convention should contact George R. Brackmann, c/o the Society, Lackawanna Terminal, Hoboken, N. J.

RUTHERFORD, N. J. The Rutherford Model Railroad Society have begun operation of their large HO pike located at club headquarters, 319A Union Avenue. Anyone interested in visiting the layout should contact the President, Bob Gregory, 53 Monona Ave.

ROCHESTER, N. Y. Something really new in N.M.R.A. get-togethers will be featured at the Niagara Frontier Regional Meet to be held in this city October 16 and 17. Scheduled for the Sunday morning session is a four-way model railroad conference clinic conducted on the following subjects: 1. Realism in operation; 2. Planning and construction of scenery; 3. The ABC's of electrical control; and 4. Club organization and management. These subjects are sufficiently broad to cover all gauges and interests. In these give and take discussions, both beginners and experts in the hobby will profit through the exchange of ideas, hints and experiences in the various fields. A fan trip, banquet, business meeting and club pike operation in three different gauges will complete the program.

INDIANAPOLIS, IND. The Mid-Central Regional Meeting of the N.M.R.A. will be held in Indianapolis on October 16 and 17. Indianapolis HO Model Railroad Club, sponsors of this meeting, have an outstanding program prepared and a large attendance is expected. There will be open house at their club rooms located in Union Station followed by a continuous program of movies in the evening. After the business meeting on the 17th, a deluxe fan trip has been planned which will include the "Belt" facilities of the Indianapolis Union Railway Co. and the Beech Grove Shops of the New York Central System.

HOLLADAY, UTAH. The NAVA "HO" Model Railroad Club got off to a good start last April when their first meeting was held. It started off with a roster of eight members and since that time membership has been growing steadily. A building 19 x 33 feet has been donated to the club along with a multitude of car and structure kits. Work on the projected layout was scheduled to start in September. Meetings are held every Friday evening at 7:30, visitors are welcome the third Friday of each month. All model rails in the Murray Holladay area interested in membership in this HO club located at 875 E. 56th, South Murray, should contact the secretary, Bruce Reeves, 2222 Arbor Lane.

NEW HAVEN, CONN. The fourteenth annual show of the New Haven Society of Model Engineers is now in the making and will be open to the public during the following hours: On Nov. 5 and 12 from 7 to 10 P. M. and on Nov. 6, 7, 13 and 14 from 2 to 9 P. M. This annual exhibit is visited by thousands of enthusiastic spectators each year. It is held at the Society's Club Rooms located at the corner of State and Court Streets, entrance at 90 Court, only three blocks from the center of the city.

Address all news to: Club News Editor, Model Craftsman, Ramsey, N. J.

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# Let's Have Fun

**By The Late HARRY KINGSTON**

LITTLE JIMMY down on the floor opens an electric control and his train goes 'round and 'round! He's having fun! Jimmy is only five! If you have a Model Train that goes 'round and 'round, you'd better get down on the floor with Jimmy, you're in his class. Now with that slap on the wrist, let's get going.

All railroads start from someplace. After leaving one terminal, all trains have work to do before calling it a day at the other terminal. A passenger train picks up and discharges passengers and maybe at a junction drops a through car for branch line passenger service. Or, it may pick up a diner or at some important manufacturing center pick up a loaded express car for through service.

Most freight trains are made up for terminal to terminal runs and rarely stop to drop or pick up cars. On the other hand is the daily freight local (I'd like to have a dollar for every one I've ridden). The old gal starts out at an early hour in the morning with its string of way freight. Some empties for industries, some loaded solid for industries and a string of l.c.l. (less than carload lots). First stop out the Hogger spots an l.c.l. car opposite the freight house door where the Brains and a brakeman break the door seal and open up. Except for extra heavy freight, the contents will be unloaded onto an express truck. The rear shack has it easy. He only has to go back several thousand feet and protect his train with flag torpedoes or lanterns. Maybe it's snowing a young blizzard or just a nice gentle down pour—no, he doesn't have any *hard* work—he just slogs it out and back. Pretty soft!

Meanwhile, the Hogger has cut off a car of cinders from the head end and spotted if off on a siding. He then picks up a car of hogs destined for the stock yards. He backs down and couples up on his drag and if the loading of l.c.l. is finished, he whistles in his flag and starts off for the next station where the operation is repeated with variations and so on to the end of the division. We've worked about 110 miles of high rail to say nothing of station work. It's probably about 7:30 P. M. and it's the beanery and java and then to hit the hay for the morrow is just another day with the same old grind back to our home terminal and a day's rest.

This sketch of the local freight was necessary to set the stage for many hours of fun we, of the Lake Ontario System, have had. Every meeting night sees one or two local drags in operation—each with a complete crew and each crew having comprehensive orders where to spot or to pick up cars and when to take siding for superior trains. Arguments are hot and heavy. Mistakes are made and phone calls to the trainmaster follow with instructions and the promise of brownies. At 9:00 P. M. our system flyer, the Ontarian, roars through and woe to the crew gumming up the main.

Usually, starting at 8:00 P. M., our work is finished about 9:45 so the engines are returned to the engine houses and we adjourn to the diner where pie and coffee await us poor jaded model rails. But, we've had fun and still are talking over our problems. It's, "Bill, if you'd have dropped that Pennsy hopper at 'Di,' Joe could have taken it back on his Northbound."

That bit of conversation brings another point that makes model railroading more realistic and more fun. On the Lake Ontario System we try to follow real railroad practice as closely as possible.

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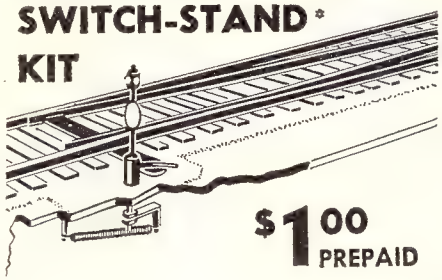

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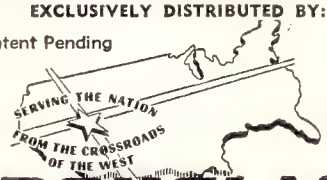


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Well, let's be realistic right at the outset. A railroad must have scenery or it loses face right at the beginning. Who ever heard of the New York Central running up the Hudson Valley on a right-of-way made out of two by twos supporting a road bed of Georgia Pine? To do it right, you just *gotta* have scenery so you read up on some of those high fallutin articles on how to paint a background. Then, you reach for the aspirin pronto! The article says that your horizon must be at your eye level. Well, my gosh—I'm a shorty with an eye level of five feet and yours might be five feet six or seven so according to that theory, we must invent a flexible horizon. Sort of a rubber background as it were, jumping up and down like a Mexican bean on a hot stove. The devil with a lot of artistic rules, we're just trying to have fun. Let's go to the theater and study the scenery on the stage. There you are, sitting down in the orchestra on a level with or below the stage where an eye level horizon is impossible—yet the scenery on the stage doesn't offend your artistic sense, in fact it looks pretty good. Now, let's study the hows and whyfores! See that house on the left? It's just a flat drop, roughly painted to give the impression of the side of a house. A few feet behind it is another drop painted like another house but just a little smaller and just a little duller in color. Behind that is a third drop of a still smaller house—and by golly—you've got a street scene.

Now let's go rural. One of my pet railroad scenes is the Droney Curve on the B & O just south of Bradford, Pa., where the rails come down from the Big Level with a mean elevation of 2000 feet crossing the Allegheny Mountains to a mean of some 500 feet. The Droney Curve is a big sweeping curve around the sides of heavily timbered hills and double tracked. A malley at each end shoves the freight drags up the hill and the Day Express from Pittsburgh slides down like riding a roller coaster. I wanted this on my layout and found it really easy and a lot of fun in the making. The mine line on my layout starts at one end and climbs gently to the other end where, with a wide sweeping curve, it reverses direction and continues to climb. Here was our curve but where were our mountains and forests? Here is where we use the old Theatrical Technique. Only this time, instead of diminishing size as we go back stage, we increase the height of each scenic unit. Starting with the smaller ones in the foreground and working back to the largest—thus giving the impression of distance and altitude.

Here's how you make these scenic units—get old paper boxes that are suf-

ficiently heavy to stand upright without bending. For the lowest ties, take a strip about a foot long and about six inches high. With heavy shears, cut a series of saw teeth or uneven wedges. You'll get the idea after your first attempt. Now nail a board flush with the bottom as a *holder*-upper and your first unit is ready for a paint job.

At your hardware store get the following items: colors ground in oil, one tube of each—Chrome green medium, Chrome green dark, medium blue and burnt sienna—also a pint of turpentine. These hardware store tubes of color are about half the price as the art store colors and just as good for our purposes. But you will have to go to the art store for two white flat bristle brushes, one a quarter and one a half inch wide. An old cigar box top or bottom makes a perfectly good pallet.

Now, let's paint scenery. Squeeze out a little medium green on your pallet, dip your quarter inch brush lightly in the tablespoon or so of turpentine you have poured in an old saucer and work some color into it. Start at the top of a tree and with a downward and left stroke, brush in a limb. Do it again and again right down to the bottom of the tree. Don't be careful and don't be even with your work. I will have to interrupt to explain why we use turpentine instead of oil as a thinning medium. It is because we must have a flat, dull-finished job—and that's just what turps will give. Now, after you have one side of your pine forest started, we'll take another shade, this time it will be the dark green and we will go down the other side of the tree only now our sweeping curve is down and to the right. Notice what has happened. Your trees are rounded out, light on one side and dark on the shaded side. Maybe the branches on one side will overlap or should I have said your brush strokes will overlap. Well, that's fine—it sets some trees back of the others. Forests weren't planted in rows you know! What about the blue and the brown? Well, as you get experience, you will find that a stroke of blue here and there on the dark side of the trees will be an improvement and for the brown, just a little dabbed along the ground level simulates underbrush. Well, it's time to hit the hay, so wipe the paint off your brushes and wash them well in turpentine. It will pay you to keep them clean.

While you are working up your scenery, don't let some highbrow tell you that your masterpiece doesn't look like a pine forest. To start off with it won't, but when you are all finished and your scenery is set up, you'll swear it's the real thing.

## Model Railroad Foliage

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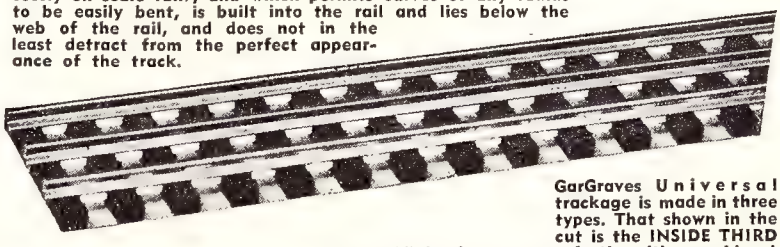

GarGraves Universal trackage is made in three types. That shown in the cut is the INSIDE THIRD RAIL TYPE. It mates perfectly with any Lionel trackage except OO, American Flyer trackage except HO and 7/8" and any Marx O gauge trackage. GarGraves is also available in TWO RAIL and in TWO RAIL with every fifth tie longer so the user can install his own Outside Third Rail.

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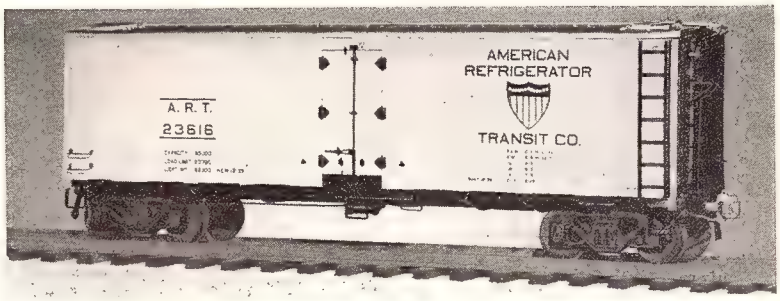


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Individual trees should be made on separate base boards, not less than 3/8" thick, which may be tapered down to a sharp edge to blend with the balance of the ground surface. The only place where the full thickness is required is where the tree is placed. Obtain a picture of the type of tree you wish to model and make a wire skeleton soldered firmly together. As this skeleton will be covered, use plenty of solder. Make a mixture of carpenters glue and fine sawdust, working it into a paste and make sure there are no dry spots. Press the paste into shape around the wire. Then take more sawdust and paint it the color you desire. Dip or spray the tree with very thin shellac and, holding the tree in a vertical position, immediately sift the sawdust over the tree. Repeat as often as necessary. With a little patience, realistic models can be produced with this procedure. Such trees will give your model pike that finished look.

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## ENCLOSED MOTOR DRIVE

(*Continued from page 22*)

hole into the quill following with a 2-56 tap. Next insert the axle in the quill so that its shoulders project equally on both ends of the quill. The set screw, put back into the hub will lock both pieces in place. Now turn the quill around and drill No. 50 at a 90 degree angle to the set screw, down through the hub, quill, axle and out the other side. Tap this hole 2-56. A steel screw threaded into this hole serves to pin the quill to the axle yet can be easily removed at any time. Use the same method to pin the trailing axle in its quill.

The final construction step is to install the bottom cover on the gear box. Remove all interior fittings when this is being done. Cut the cover from a 1 1/16" wide strip of tin can stock so that it will curve around the bottom edges of the side plates, meeting the top plate under the overhang. Solder the cover tightly along all edges to form a grease tight box. This cover stiffens the gear box considerably and acts as a skid plate should the truck derail. Clean off the solder on all exposed surfaces then reinstall the


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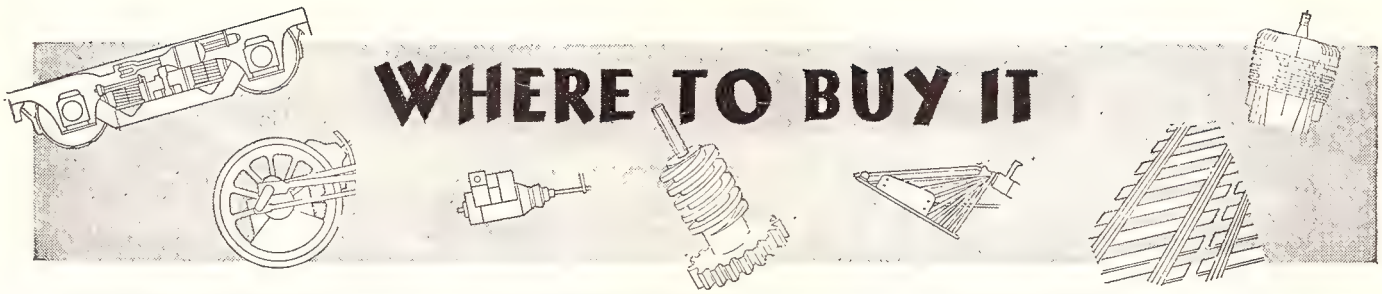

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(*Continued from page 47*)

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mechanism. First insert the power quill with the chain looped over its sprocket. Then install the trailing quill with the chain loop in place. Slide the chain guide in place where it is held tightly by the external screws. All that remains is to press on the wheels and clamp on the motor assembly after which your truck is ready to roll. One word about the installation of the wheels. If they are pressed on, it will be necessary to saw through the axles on the outside to remove them without damage to the structure. However, if one wheel on each set is reamed out to a hand fit, it can be soldered on the axle and therefore easily removed at any time without damage.

When lubricating this truck, do not pack the gear box full of grease—a low level for the bottom chain leg to drag through will be sufficient. Ordinary auto chassis grease will do nicely. One such truck was lubricated with Spicers Universal Joint grease, a gooey mess that puts taffy to shame, five years ago and still has a full "crankcase."

Truck side frames ride on the axles of this drive unit and are held in place by end bars soldered across the side frame ends. This construction resembles the end bars or channels usually found on prototype trucks such as Standards or Baldwins.

While the gearbox does not directly resemble any item found on prototype trucks, from an end view it fills the void between the wheels and the rounded ends do suggest axle hung traction motors.

## EXPRESS CARS

(*Continued from page 24*)

terial, allowing for the thickness of other members—see sketch. Allow for thickness of the card board sides. The roof is a saw and plane job unless you have a circular saw. Assemble, using cement and brads. Lay out the sides car on card board, cut out and cement to body. Use wood strips to strengthen those extensions below floor. Allow for fitting trucks and couplers at the same time. Those thin brass stamped ends and the usual roof walks can be used.

Corrugated doors of the right height for the box cars or a plain card board door cemented on for the reefers, with two latch bars and no hinges are used on this model. Then too, the ice hatches are used on the reefers. Ladders, grab irons, brake platform and ajax brake are, as usual, applied to house cars.

For lettering these cars, decals are available for the streamliners of the various roads. The alphabet, Railroad Roman, is available for those box cars of various colors with gold lettering. The left overs from this set can be used for station signs, etc.

Also included herewith is a B & O round roof car which is really an M53 box car painted Pullman Green and passenger equipped. Lettering is the same as box car lettering, but in gold.

Construction is the same as other cars except for the roof and outward braces. The roof is a job of planing and sanding. After securing to the body, sand flush with the sides and ends. The braces can best be made of balsa wood or card board 1/32" thick and 1/16" wide. Form continuous from one side over roof and down the opposite side, each in one strip. Cement in place. Doors and roof walk go on over these strips. Use additional strips at edges of doors.

All express cars and express reefers have marker brackets at their corners as does all passenger train equipment. It is not unusual to see one or more on the rear of a passenger train. Some roads have a rule against this. Others rule that not more than two locked or sealed cars may be handled behind the last opened coach. This is to permit the flagman to ride at or near the rear end.

Many stations have express car tracks, not unlike industrial spurs, usually just long enough to hold one or two express cars. Cars are generally set out by out bound passenger trains in the morning, unloaded and reloaded by the express company and returned to the terminal in the early evening. These shipments are unloaded and reloaded into car loads for final destination and move in solid trains, called express specials which run during the night.

## MODEL RAILROADING MADE EASY

(*Continued from page 32*)

changes in temperature and they will creep with traffic. Soldering all the joints will cause bending and many hours of unnecessary trouble.

Tinplate track may be used in connection with your railroad—in the past I have had exceptionally fine results with tinplate track on my own pikes. Of course I bent the metal ties outward slightly on the inside of the curved sections to give it a bank and a scale 90 miles per hour on the regular tinplate curve is no longer dangerous.

**Next month's Model Craftsman holds many pleasant surprises for you — as usual it will be full of all the latest on model railroading. Each issue of this all model railroad magazine will give you many hours of pleasure.**

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I used tinplate track and switches in part of my yards and a small section of the main line where the yard lead track joins the main iron. (Main Iron, High Iron and HI-way, all mean the main line trackage.) Where the tinplate track ends and the spiked rail starts, I left a gap and filled in with a non-conductor. Wire this section to another control, using the common ground of the transformer and you have two separate blocks, or sections of track where two trains may be operated, one in each section independent of each other. Of course the gap must be repeated half way around the loop, or if a point to point operation, half way out. This may be done as many times as you have controls on your transformer. In my case, four. The sketch shown in Figure 4 will illustrate the above mentioned ideas.

How many times have I been asked why I build a super-duper scale box car and then give it to someone that will appreciate it? Well, I would like to put my answer to this right here. I have classified model rails into three distinct groups. 1. Those who like to build for the thrill of creation. 2. The ones who like to show everyone in sight their absolute scale layout, even to the pipe in the engineers mouth, or the knife and fork at the plate in the diner. 3. The rest of the clan that like to operate and own a model railroad.

Now, which class are you in? There is nothing at all wrong with any one of these phases of the hobby, they all contribute largely to the ultimate development of the kits, ideas, etc., that make this the pleasure and entertaining hobby it is. Yea—even educational. I built a bridge for my layout and a bridge engineer remarked that it follows the approved methods of construction, stress and strain laws, etc.—But, to me it is just a fair bridge made of balsa wood and painted black with ties glued to the rail, every fifth tie spiked and the whole thing glued to the bridge.

Simple—Yes indeed—just pick out the type truss, draw it in your scale on a piece of board, make two sides as the model airplane boys do and put your cross bracing in between the two sides. When dry, line up the ties on a board, glue the rails on them and then spike every fourth or fifth tie to the rails. Now remove the rail assembly from the boards and glue on the bridge and then paint. You will be surprised how strong a little bridge can be.

Of course you have gathered by now that I am one of the operating bugs. I like to see my trains run, schedules maintained, and all sorts of shunting operations—so I go for appearance and duty rather than minute scale. Take a car close enough to scale, but with *toy* red paint and no "look" of realism. Check the trucks and couplers. Are they the type you want? Settle that first and then paint the whole car a model railroad finish in the proper color. Find out where the names and markings go and get your decal (transfers) set at your local model railroad shop. Apply the decals and touch up your paint job. Now go to the dime store and get a

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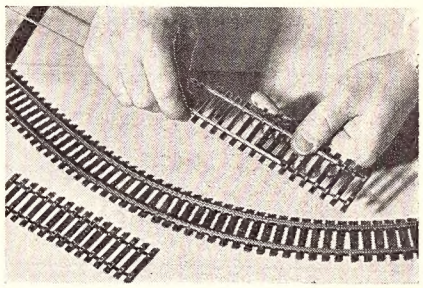

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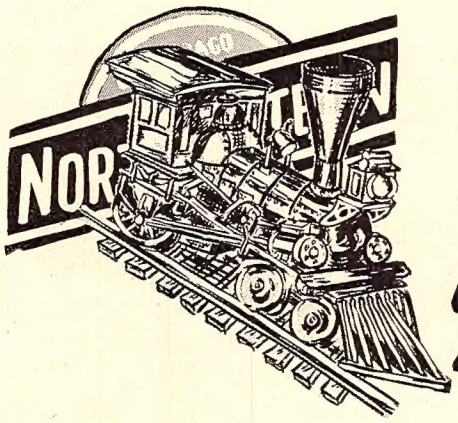
When it comes to coupling and uncoupling, mine is all automatic and trouble free. I use tinplate trucks and couplers of "S" gauge manufacture and it eliminates all the trouble I used to have with the scale jobs. Of a certainty, the scale jobs are good and some "O" gauge ones I had prior to the war were swell —but expensive. Twenty-one dollars is a lot for couplers and that is what I had. My present outlay for trucks and couplers attached—to date on twenty cars, some built up from scratch and some kits purchased less trucks—amounts to nine dollars and I honestly have less trouble.

I strongly advise against the new modeler buying the advanced kits until the art of building and spoiling is accomplished. Start with simple kits and tools. My complete layout was built with a hammer, saw, pliers, nails, file, soldering iron and solder, a small 25 cent hacksaw, screwdriver, level, a few drills and sandpaper. That's all the tools or components I used. I have many more tools that could be used but just wanted to prove a real operating layout could be built without a shaper, lathe, drill press and the rest of the shop equipment I used to rely on when I was a toolmaker.

I have found that more fellows were scared away from the hobby because of the tales told by some of milling a frame or spending great amounts for switch machines, relays, etc. These things are not a must for an operating layout. Sure, I had all that at one time but the kick I now get from the simple operation I have is far more than when trains stopped and started themselves, whistle signals given by track trips, etc. You can always add these later, months or even years later, if you wish.

Also, when you read of current drop, loss evaluation, sprung and double drives, just pass it by until you have had a few years experience with track, trains, cars and simple scenic effects, then, if you wish, tackle the other problems for interest or because you decided you wish the ultimate in scale doings. Don't ever let anyone tell you that you cannot start in this hobby with a tinplate set of trains. One of the finest layouts I have seen started twelve years ago with his son's Xmas set.

If you are single, get acquainted with a fellow with interests along the railroad line. If married, sell your wife the idea of building houses and making towns for you. This article, the first, was to prepare you for some easy methods to follow in the next few. I will devote the last article to the old timers and some short cuts for them to pick over. Hey, Mom—some coffee and get #322 (Pacific) hooked on to that string of varnish and we will pass that freight waiting to pull out since last night. Till next month—watch your trackwork.

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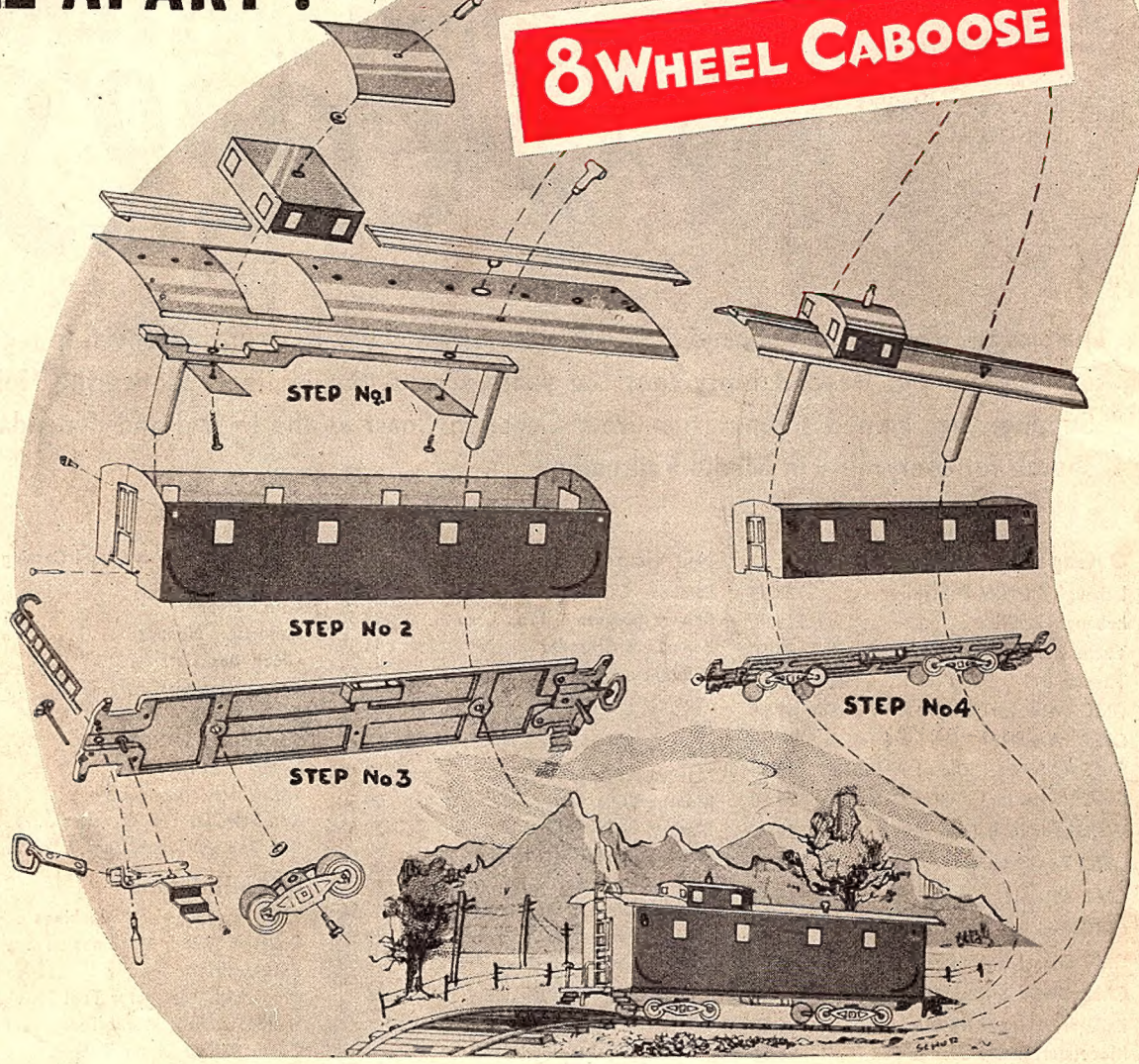


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Our 8-wheel Caboose was a swell piece of engineering—the new design is even better. Entirely new method of construction (see construction chart above) means new ease of assembly for you. No soldering, tapping or machining required—the parts literally fall together—the *all-metal* construction is your guarantee that they'll never fall apart!

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